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1910

ANNUAL REPORT

OF THE

PRESIDENT OF THE BOROUGH OF THE BRONX

OF THE

CITY OF NEW YORK
FOR THE YEAR 1910

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BOROUGH OF THE BRONX.

REPORT OF THE PRESIDENT OF THE BOROUGH FOR THE YEAR 1910.

June 28, 1911.

Honorable WILLIAM J. GAYNOR, *Mayor of The City of New York:*

Dear Sir—Pursuant to section 1544 of the Greater New York Charter, I herewith transmit to you the annual report of the operations of the office of the President of the Borough of The Bronx for the year ending December 31, 1910, including the report of the Superintendent of Buildings for the same period, for your information and for publication in the CITY RECORD. Yours very truly,

CYRUS C. MILLER, President of the Borough of The Bronx.

LOCAL BOARDS OF THE BOROUGH OF THE BRONX.

During the year 1910, 230 new petitions were received by the President of the Borough of The Bronx for acquiring title to streets and avenues, for constructing sewers, for regulating and grading and for paving, in the Borough of The Bronx.

Thirty-one petitions for assessable improvements of previous years which were laid over on account of lack of title, subsurface improvements, or adoption of map, were acted upon, as well as fifty-six (56) miscellaneous matters, such as providing for the maintenance of sewers and highways and other matters coming under the jurisdiction of other City Departments, which were referred to them for their attention.

Total number of matters considered, 317. Resolutions adopted and forwarded to the Board of Estimate and Apportionment, 174.

The following is a list of the different kinds of proceedings that were acted upon by the Local Boards of Morrisania, Chester, Crotona and Van Cortlandt:

For Acquiring Title to Streets and Avenues—15 adopted, 2 denied, 5 filed.
For Regulating and Grading—51 adopted, 8 laid over, 4 rescinded, 1 denied, 6 filed
For Paving—41 adopted, 1 denied, 2 rescinded, 1 laid over.
For Constructing Sewers—32 adopted, 7 rescinded, 2 filed.
For Laying Crosswalks—1 adopted.
For Regulating, Grading and Paving—1 adopted.
For Erecting Guard Rails—2 adopted, 1 filed.
For Bridge Construction—1 recommended.
For Placing Flagging—1 adopted, 1 filed.
For Changing Lines and Grades—2 recommended, 2 denied, 1 filed.
For Planting Trees and Shrubbery—1 denied.
For Constructing Receiving Basins—11 adopted.
Map Alterations, for Laying Out on Map of the City—16 petitions recommended, 5 filed, 5 denied, 1 rescinded.

Estimated Cost of Improvements for Which Resolutions Were Forwarded to the Board of Estimate and Apportionment.

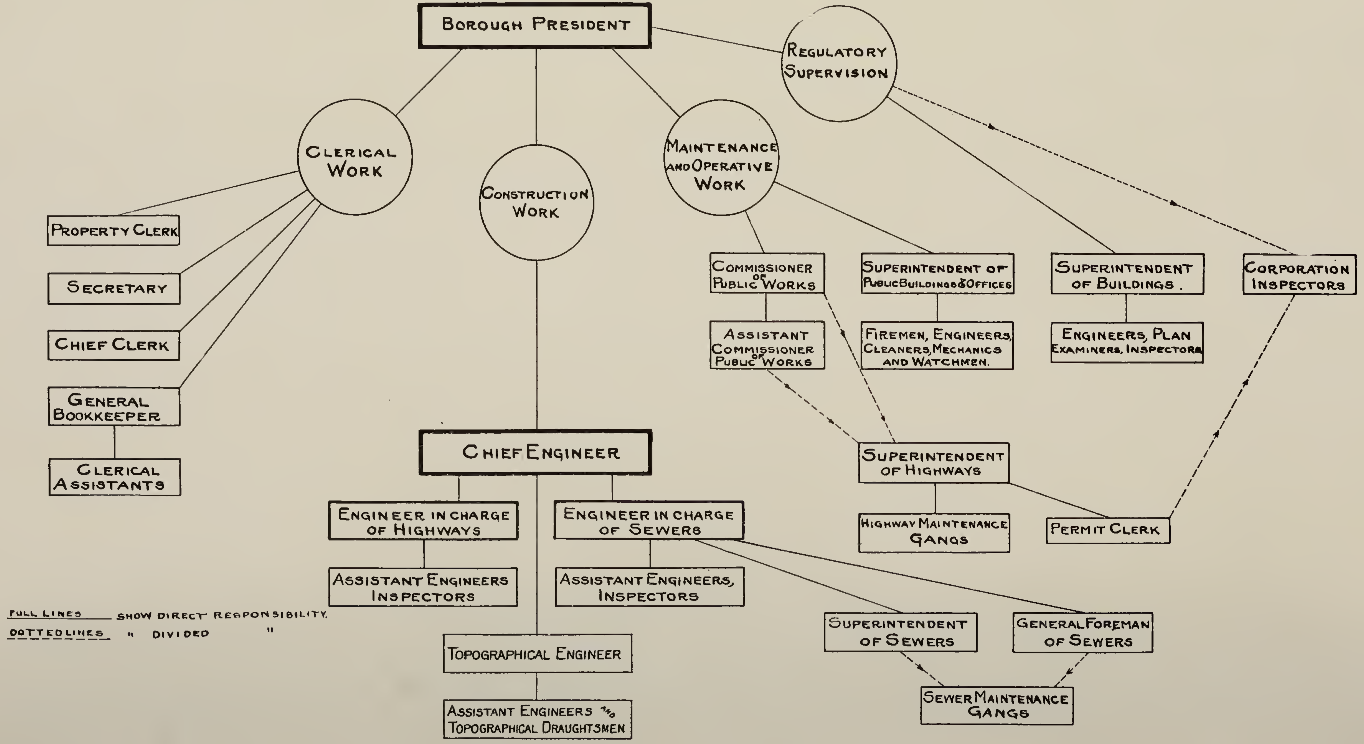
For constructing receiving basins	$7,858 50
For regulating and grading, etc	1,946,836 50
For paving with sheet asphalt	192,630 00
For paving with asphalt blocks	225,560 00
For paving with bituminous pavement	116,900 00
For granite block paving	72,000 00
For wood block paving	....
For constructing sewers and appurtenances	909,415 00
For regulating, grading and paving	69,500 00
For laying crosswalks	175 00
For erecting guard rails	90 00
For placing flagging	2,400 00
For sheet asphalt and asphalt blocks	5,630 00
Grand total	$3,548,995 00

27Apr'16 Doub. 1910 C

CHART OF ORGANIZATION

OFFICE,

PRESIDENT BOROUGH OF THE BRONX *in effect 1909*


BOROUGH PRESIDENT
CLERICAL WORK
CONSTRUCTION WORK
MAINTENANCE AND OPERATIVE WORK
REGULATORY SUPERVISION
PROPERTY CLERK
SECRETARY
CHIEF CLERK
GENERAL BOOKKEEPER
CLERICAL ASSISTANTS
CHIEF ENGINEER
ENGINEER IN CHARGE OF HIGHWAYS
ASSISTANT ENGINEERS INSPECTORS
ENGINEER IN CHARGE OF SEWERS
ASSISTANT ENGINEERS, INSPECTORS
TOPOGRAPHICAL ENGINEER
ASSISTANT ENGINEERS AND TOPOGRAPHICAL DRAUGHTSMEN
COMMISSIONER OF PUBLIC WORKS
ASSISTANT COMMISSIONER OF PUBLIC WORKS
SUPERINTENDENT OF PUBLIC BUILDINGS & OFFICES
FIREMEN, ENGINEERS, CLEANERS, MECHANICS AND WATCHMEN.
SUPERINTENDENT OF BUILDINGS.
ENGINEERS, PLAN EXAMINERS, INSPECTORS
CORPORATION INSPECTORS
SUPERINTENDENT OF HIGHWAYS
HIGHWAY MAINTENANCE GANGS
PERMIT CLERK
SUPERINTENDENT OF SEWERS
GENERAL FOREMAN OF SEWERS
SEWER MAINTENANCE GANGS
FULL LINES SHOW DIRECT RESPONSIBILITY.
DOTTED LINES " DIVIDED "

BUREAU OF BUILDINGS—OFFICE OF THE SUPERINTENDENT.

Honorable CYRUS C. MILLER, *President, Borough of The Bronx:*

Sir—I have the honor to transmit herewith a detailed report of operations in the Bureau of Buildings, Borough of The Bronx, for the year ending December 31, 1910.

In order to systemize the work of this Bureau, its complete reorganization was deemed an absolute necessity. It was a somewhat difficult task to bring order out of chaos, considering the many obstacles to overcome and the disordered condition of the various divisions of the Bureau.

It was found that in order to provide employment for additional Clerks various useless records were being kept, duplicating the work of other Clerks, etc.

It is my pleasure, however, to state that a thorough housecleaning, the dropping of unnecessary Clerks, the establishment of discipline, the systemization of the records, etc., have brought about a most satisfactory condition of affairs, which I am confident meets with your hearty approbation.

Whereas the Budget for 1910 authorized the expenditure of $137,960, only 83 per cent. of that sum, or $114,420.09, was expended under my administration, a saving of $23,539.91.

The following tables of comparisons are submitted for your examination, and you will find that even with the diminished force of Clerks and Inspectors, the work accomplished by the Bureau in 1910 exceeded to a very considerable extent the record for 1909. For example:

	Administration.	Field and Inspection.	Contingencies.	Total.
The Budget for the Bureau for the year 1910 aggregated $137,960, divided as follows.................	$44,500 00	$91,200 00	$2,260 00	$137,960 00
Of this amount there was expended during the year..................	35,488 98	76,837 00	2,094 11	114,420 09
Showing a net saving in the Bureau for the year, of...	$9,011 02	$14,363 00	$165 89	$23,539 91

The saving in the administration was accomplished by the dropping of four unnecessary Clerks, whose salaries aggregated $8,100 and the abolishing of the position of Assistant Superintendent, in October, 1910, the saving of nearly $1,000 additional.

The saving in the Field and Inspection Force was accomplished by the dropping of six Inspectors, whose services were likewise unnecessary. That the reduction in the clerical force has in no way affected the efficiency of the Bureau, will be shown in the tables of comparison between the years 1909 and 1910; for example:

During the year 1909 there were filed in the Bureau, plans for 3,273 new buildings and alterations of all kinds, at an estimated cost of $41,715,165, whereas during the year 1910 plans for 3,109 new buildings, alterations, etc., were filed at an estimated cost of $45,593,871, or an increase of $3,868,706 in 1910 over 1909.

During the year 1909 there were 2,655 violations of all kinds filed, whereas in 1910 the violations filed amounted to 4,779, an increase of 2,124.

In the Field and Inspection Force 54 Inspectors, during 1909, made 234,183 inspections of all kinds, divided as follows:

Construction inspections, 125,701; plumbing and drainage inspections, 46,064; iron and steel construction, 61,485; elevator inspections, 353; complaints investigated, 580—making a total of 234,183.

During the year 1910 48 Inspectors made 294,925 inspections of all kinds, as follows:

Construction inspections, 174,013; plumbing and drainage inspections, 50,021; iron and steel inspections, 68,958; elevator inspections, 433; complaints investigated, 1,501—making a total of 294,926, showing 60,742 inspections in the year 1910 in excess of the year 1909. The average number of inspections of all kinds made by 54 Inspectors in 1909 was 4,337, while in 1910 the average number of inspections for 48 Inspectors was 6,144, an increase of 1,809 inspections per Inspector in the year 1910 over the year 1909.

The cost per inspection during the year 1909, $0.5657, was reduced in the year 1910 to $0.3879, while the percentage cost of inspection, computed on the value of new buildings, alterations, etc., as filed in the Bureau was only .0025 in 1910, as against .0032 in 1909. Thus, while the business of the Bureau in 1910 far exceeded the record for the year 1909, the public has in no way suffered which may be readily explained by the simple statement that the work in the Bureau has been thoroughly systemized.

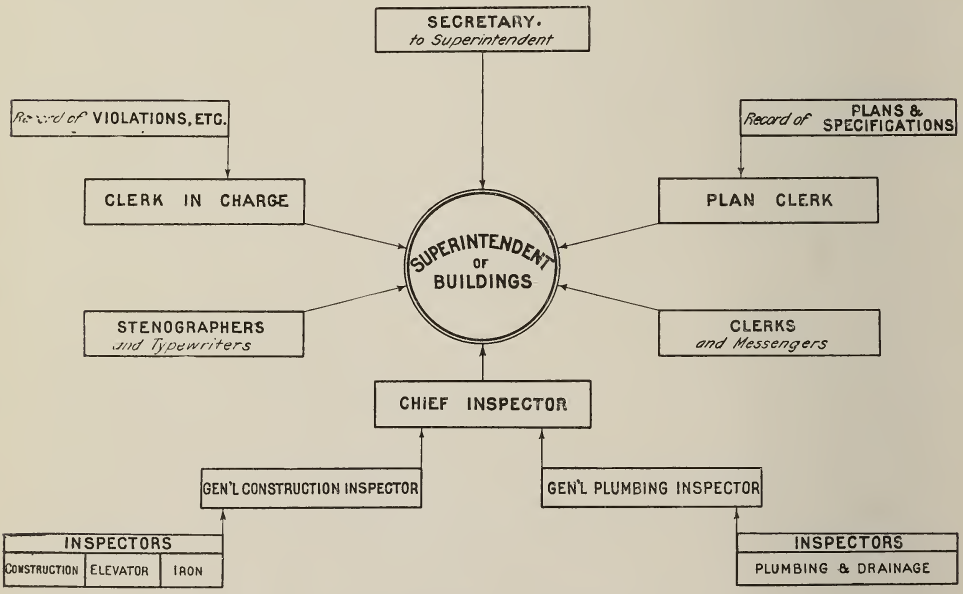
As for the Field and Inspection Force, through the adoption of disciplinary methods the Inspectors were induced to apply themselves more assiduously to their duties.

Impartiality to all has predominated the administration of the business in the Bureau, with the result that the public with whom we come in contact have grown to learn that while all due courtesy and due consideration are shown them, the provisions of the law must in all cases and without fear or favor be strictly enforced.

In conclusion, therefore, I beg to assure you that the Bureau of Buildings is now in a most satisfactory condition, with a thoroughly competent clerical and field and inspection force, and with the past year's practical experience in the administration of affairs to aid, I feel very confident that the present standard of efficiency in the Bureau will be maintained.

Respectfully, JAMES A. HENDERSON, Superintendent of Buildings.

Organization.


SECRETARY. to Superintendent
Record of VIOLATIONS, ETC.
Record of PLANS & SPECIFICATIONS
CLERK IN CHARGE
PLAN CLERK
SUPERINTENDENT OF BUILDINGS
STENOGRAPHERS and Typewriters
CLERKS and Messengers
CHIEF INSPECTOR
GEN'L CONSTRUCTION INSPECTOR
GEN'L PLUMBING INSPECTOR
INSPECTORS
CONSTRUCTION
ELEVATOR
IRON
INSPECTORS
PLUMBING & DRAINAGE

BUREAU OF BUILDINGS

Plans and Specifications for New Buildings Filed and Acted Upon During the Year.

Classification	Number of Plans.	Number of Buildings.	Estimated Cost.
Dwelling houses, estimated cost between $50,000 and $20,000	4	4	$85,000 00
Dwelling houses, estimated cost less than $20,000	181	343	2,252,300 00
Brick tenements, estimated cost over $15,000	507	933	34,482,000 00
Brick tenements, estimated cost less than $15,000	22	38	459,000 00
Frame tenements	1	2	15,000 00
Hotels	6	6	87,000 00
Stores, estimated cost over $30,000	12	13	658,000 00
Stores, estimated cost between $30,000 and $15,000	12	15	309,000 00
Stores, estimated cost less than $15,000	42	53	236,650 00
Office buildings	12	12	344,500 00
Manufactories and workshops	56	56	842,800 00
Schoolhouses	6	6	1,090,000 00
Churches	8	8	265,500 00
Public buildings, municipal	2	4	25,500 00
Public buildings, places of amusement, etc	51	56	1,106,200 00
Stables and garages	90	92	385,655 00
Frame dwellings	199	273	1,274,600 00
Other structures	102	114	115,700 00
Totals	1,313	2,028	$44,034,405 00

Plans and Specifications for Alterations to Buildings Filed and Acted Upon During the Year.

Classification.	Number of Plans.	Number of Buildings.	Estimated Cost.
Brick dwellings	49	55	$52,395 00
Frame dwellings	208	223	208,190 00
Brick tenements	60	62	78,165 00
Frame tenements	18	22	17,805 00
Hotels	16	17	23,000 00
Stores	112	122	284,540 00
Office buildings	16	16	53,500 00
Manufactories and workshops	49	51	196,350 00
Schools	8	8	217,780 00
Churches	3	3	3,900 00
Public buildings	20	20	232,000 00
Stables and garages	38	38	27,225 00
Miscellaneous	9	9	3,275 00
Totals	606	646	$1,398,125 00

Other Applications Filed and Acted Upon During the Year.

Nature.	Number.	Estimated Cost.
Construction slips (including temporary structures or ordinary repairs)	818	$102,849 00
Plumbing and drainage slips	405	41,096 50
"No construction" slips	57	7,600 00
Totals	1,280	$151,545 50

New Buildings and Alterations Commenced, Completed, or in Progress During the Year.

	Commenced.	Completed.	In Progress December 31, 1910.
New buildings	1,524	1,665	900
Alterations	607	597	175

Violations of Law and Unsafe Building Cases Filed During the Year.

Nature.	Pending December 31, 1909.	Received Since.	Totals for Disposition.	Removed Before Action by Courts.	Dismissed or Cancelled.	Totals of Final Disposition.	Now Pending December 31, 1910.	Forwarded for Prosecution.
Defective construction, materials, etc.	288	1,852	2,140	1,548	....	1,548	592	267
Erecting, altering or removing without permit or after disapproval	195	1,745	1,940	1,555	....	1,555	385	163
Insufficient means of escape, fire-escapes, aisles obstructed, etc.	5	52	57	11	....	11	46	2
Defective light and ventilation	1	....	1	1	....	1	....	....
Defective plumbing and drainage.....	86	520	606	459	....	459	147	47
Unsafe buildings...	206	610	816	562	....	562	254	4
Totals........	781	4,779	5,560	4,136	....	4,136	1,424	483

Notices Issued During the Year.

To place fire-escapes on buildings, 81; to remove violations of law, 4,895; to repair passenger elevators, 11; to remove unsafe buildings, 1,324; letters, including notices of disapproval of plans, 5,688. Total, 11,999.

Complaints Received and Investigated During the Year.

Nature.	Pending December 31, 1909.	Received Since.	Totals.	Unfounded.	Remedied on Verbal Notice.	Notices Issued,	Totals.	Pending December 31, 1910.
Defective flues.....	....	5	5	2	....	3	5	....
Defective construction, materials, etc.	....	364	364	116	....	248	364	....
Defective leaders...	....	12	12	4	....	8	12	....
Erecting and altering without permit	....	50	50	33	....	17	50	....
Frame structures erected or removed without permit	....	32	32	14	....	18	32	....
Defective plumbing and drainage.....	....	34	34	24	....	10	34	...
Insufficient means of escape, fire-escapes out of repair, etc.	....	65	65	58	....	7	65	....
Unsafe buildings...	....	933	933	724	....	209	933	....
Fences over ten feet high	....	5	5	2	....	3	5	....
Wood too near flues	....	1	1	....	....	1	1	....
Totals.......	....	1,501	1,501	977	....	524	1,501	....

Inspections of Passenger Elevators During the Year.

Found to be in good order and fit for use	422
Found not in compliance with the law	11
Number inspected	433

Disposition of Cases Found Not in Compliance with the Law.

Nature.	Pending December 31 1909.	Received Since.	Totals.	Law Complied With.	Now Pending December 31, 1910.	Forwarded for Prosecution.
Defective guide rails, posts and gibs	..	1	1	1	..	..
Defective running gear	..	1	1	1	..	..
Doors and door locks out of repair	..	2	2	2	..	..
Fronts of cars unprotected	..	1	1	1	..	..
Generally unsafe	..	2	2	2	..	..
New ropes required	..	3	3	2	1	..
Safety attachments out of order	..	1	1	1	..	..
Totals	..	11	11	10	1	..

Total Number of Inspections, with Reports Thereon, Made by Inspectors During the Year.

By Construction Inspectors, 174,013; by Iron and Steel Inspectors, 68,958; by Elevator Inspectors, 433; by Plumbing and Drainage Inspectors, 50,021; total, $293,425.

Pieces of Iron and Steel Inspected During the Year.

Beams, 54,720; columns, 3,284; angles, 1,403; channels, 6,944; bases, 379; plates, 380; tees, 75; girders, 1,061; lintels, 547; brackets, 0; trusses, 165; total, 68,958.

Comparative Statement, Years 1909 *and* 1910.

	1909.	1910.
Applications filed for new buildings	2,402	2,028
Estimated cost	$40,748,610 00	$44,034,405 00
Applications filed for alterations	654	646
Estimated cost	966,655 00	1,398,125 00
Construction slips filed	619	818
Estimated cost	$71,000 50	$102,849 00
Plumbing and drainage slips filed	627	405
Estimated cost	$52,365 00	$41,096 50
"No construction" slips filed	63	57
Estimated cost	$7,575 00	$7,600 00
New buildings commenced	1,930	1,524
New buildings completed	1,861	1,665
Alterations commenced	522	607
Alterations completed	508	597
Violations filed by Inspectors	2,226	4,117
Fire-escape cases filed by Inspectors	5	52
Unsafe building cases filed by Inspectors	424	610
Violations removed	2,189	3,563
Fire-escape cases removed	9	11
Unsafe buildings made safe or taken down	453	562
Complaints received and investigated	580	1,501
Notices issued (including notices of disapproval of plans)	7,973	11,999
Inspections made by Construction Inspectors	125,701	174,013
Inspections made by Plumbing and Drainage Inspectors	46,064	50,021
Inspections made by Elevator Inspectors	353	433
Number of pieces of iron and steel inspected	61,485	68,958

BUREAU OF BUILDINGS, BOROUGH OF THE BRONX.

A Report of Operations in the Bureau for the Year 1910, With Comparative Statement for the Year 1909.

Distribution of Budget for the Year 1909.

	Administration.	Field and Inspection.	Contingencies.	Total.
Allowed	$44,500 00	$87,000 00	$2,500 00	$134,000 00
Expended	44,070 68	68,335 38	2,076 70	132,482 76
Accruals	$429 32	$664 62	$423 30	$1,517 25

Distribution of Budget for the Year 1910.

	Administration.	Field and Inspection.	Contingencies.	Total.
Allowed	$44,500 00	$91,200 00	$2,260 00	$137,960 00
Expended	35,488 98	76,837 00	2,094 11	114,420 09
Accruals	$9,011 02	$14,363 00	$165 89	$23,539 91
Increase in Accruals in 1910 over 1909				$22,022 67

Tables of Comparison.

Field and Inspection Force.	1909.	1910.	Increase	Decrease.
Number of Inspectors—				
Construction	36	32	....	4
Plumbing	15	13	....	2
Iron and Steel	2	2	....	....
Elevator	1	1	....	....
Total	54	48	....	6
Classified List of Plans and Specifications Filed in the Bureau—				
New Buildings	1,363	1,313	....	50
Alterations	601	13	....	2
Construction Slip	619	815	196	....
Plumbing Slip	627	407	....	220
No Construction	63	57	....	6
Total	3,273	3,198	201	276
Computed Value of Buildings as per Plans Filed	$41,715,165	$45,583,871	$3,868,706	....
Number of Inspections Made by Field and Inspection Force—				
Construction	125,701	174,013	48,312	......
Plumbing	46,064	50,021	3,957	......
Iron and Steel	61,485	68,958	7,473	......
Elevator	353	432	79	......
Complaints	580	1,501	921	......
Total	234,183	294,925	60,742	......
Average Number of Inspections, Field and Inspection Force—				
Construction	3,492	5,438	1,946	......
Plumbing	3,071	3,848	777	......
Iron and Steel	30,242	34,479	4,237	......
Elevator	353	432	79	......
Average Number of Inspections, Entire Force	4,337	6,144	1,807	......

BUREAU OF BUILDINGS—BOROUGH OF THE BRONX.

(Bureau Organized January 1, 1902.)

Comparative Statement of Plans and Specifications for New Buildings Filed and Acted Upon During the Years 1902, 1903, 1904, 1905, 1906, 1907, 1908 and 1909.

Classification.	1902.			1903.			1904.			1905.			1906.			1907.			1908.			1909.			1910.		
	No. of Plans.	No. of Bldgs.	Est. Cost.	No. of Plans.	No. of Bldgs.	Est. Cost.	No. of Plans.	No. of Bldgs.	Est. Cost.	No. of Plans.	No. of Bldgs.	Est. Cost.	No. of Plans.	No. of Bldgs	Est. Cost.	No. of Plans.	No. of Bldgs.	Est. Cost.	No. of Plans.	No. of Bldgs.	Est. Cost.	No. of Plans.	No. of Bldgs.	Est. Cost.	No. of Plans.	No. of Bldgs.	Est. Cost.
Brick dwellings, est. cost over $50,000	..	..	....	..	..	....	1	1	$55,000	..	..	....	..	..	....	..	..	....	..	..	....	..	..	....	..	..	....
Brick dwellings, estimated cost between $50,000 and $20,000	2	2	$40,000	..	..	....	1	1	20,000	2	2	$60,000	1	1	$20,000	..	..	....	2	2	$47,000	2	2	$60,000	3	3	$65,000
Brick dwellings, estimated cost less than $20,000	62	178	1,172,200	43	126	$886,000	80	180	1,301,100	80	195	1,272,350	115	281	2,176,900	160	417	$2,822,300	202	517	3,427,800	203	527	3,337,400	156	297	1,945,100
Brick tenements, est. cost over $15,000	32	58	1,644,500	38	66	1,825,000	213	414	14,348,000	305	659	27,345,000	210	343	14,981,500	97	193	7,077,000	137	319	9,453,500	406	759	27,925,000	517	948	34,679,000
Brick tenements, estimated cost less than $15,000	8	12	135,000	9	11	114,000	20	30	336,700	19	36	363,000	35	82	884,200	52	135	1,257,200	49	111	1,136,000	48	104	1,274,500	12	21	226,000
Frame tenements	2	2	10,000	8	11	62,500	28	45	276,000	44	67	434,610	29	39	274,400	32	45	329,500	7	7	53,200	5	7	53,000	1	2	15,000
Hotels	1	1	85.000	..	..	....	1	1	5,000	4	4	34,500	4	4	81,500	4	4	50,500	2	2	50,000	8	8	111,500	5	5	77,000
Stores, estimated cost over $30,000	..	..	....	2	2	85,000	1	1	40,000	2	2	400,000	7	7	525,000	5	5	430,000	..	..	....	8	8	695,000	6	6	248,000
Stores, estimated cost between $30,000 and $15,000	1	1	30,000	4	4	70,000	1	1	20,000	3	3	70,000	7	7	163,000	9	10	195,500	5	5	90,000	14	14	278,925	19	29	468,000
Stores, est. cost less than $15,000	18	20	77,100	14	21	58,900	26	33	111,500	46	50	128,000	29	30	106,000	37	48	189,200	39	50	145,700	59	72	286,175	64	92	489,450
Office buildings	13	13	267.800	4	4	39,600	21	21	395,450	10	19	86,450	11	11	131,800	4	4	39,500	4	4	12,100	12	12	266,000	21	23	640,875
Manufactories and work-shops	37	39	541.300	49	49	716,650	45	46	842,265	49	49	662,750	68	69	912,400	54	55	924,550	29	31	197,125	38	40	1,092,770	95	102	1,115,900
School houses	4	4	214,500	2	2	360,000	9	9	955,000	4	5	345,000	3	3	355,000	8	14	774,000	4	4	241,500	7	11	391,450	5	5	1,080,000
Churches	8	8	254.000	10	10	215,300	6	6	95,900	10	10	92,550	11	11	256,870	21	21	631,000	6	6	166,800	10	10	132,000	8	8	265,500
Public buildings (municipal)	4	5	500,000	11	11	590,000	8	8	609,315	20	21	1,225,800	7	8	157,000	10	10	788,444	12	15	2,359,500	7	10	360,500	6	9	40,300
Public bldgs. (places of amusement)	3	3	13,000	17	17	347,724	17	17	444,125	13	18	1,220,300	14	14	590,900	13	13	650,500	19	19	602,550	14	14	895,000	52	55	1,030.250
Stables and garages	43	45	115,615	49	49	167,025	37	38	88,700	78	78	257,660	94	96	607,550	93	95	384,925	49	49	125,825	64	71	314,000	91	92	383,905
Frame dwellings	216	357	1,312,250	208	320	1,226,800	466	759	3,094,350	592	948	4,225,400	602	1,090	5,312,765	474	802	4,191,000	398	680	3,273,850	373	638	3,220,140	195	271	1,250,000
Other structures	118	134	91,714	77	92	28,385	68	73	29,780	110	112	60,125	140	150	85,945	92	96	49,580	89	91	32,710	84	95	55,250	57	58	15,125
Totals	572	882	$6,503,979	545	795	$6,792,884	1,049	1,684	$23,068,185	1,391	2,278	$38,313,495	1,387	2,246	$27,622,730	1,165	1,967	$20,784,699	1,053	1,912	$21,415,160	1,362	2,402	$40,748,610	1,313	2,026	$44,034,405

BUREAU OF BUILDINGS—BOROUGH OF THE BRONX.

Comparative Statement of Plans and Specifications for Alterations Filed and Acted Upon During the Years 1902, 1903, 1904, 1905, 1906, 1907, 1908 and 1909.

Classification.	1902.			1903.			1904.			1905.			1906.			1907.			1908.			1909.			1910.		
	No. of Plans.	No. of Bldgs.	Est. Cost.	No. of Plans.	No. of Bldgs.	Est. Cost.	No. of Plans.	No. of Bldgs.	Est. Cost.	No. of Plans.	No. of Bldgs.	Est. Cost.	No. of Plans.	No. of Bldgs.	Est. Cost.	No. of Plans.	No. of Bldgs.	Est. Cost.	No. of Plans.	No. of Bldgs.	Est. Cost.	No. of Plans.	No. of Bldgs.	Est. Cost.	No. of Plans.	No. of Bldgs.	Est. Cost.
Brick dwellings	40	57	$47,880	28	31	$55,150	28	37	$75,100	56	60	$143,185	45	52	$71,925	50	52	$53,875	49	53	$83,055	54	57	$89,300	49	55	$74,370
Frame dwellings	201	216	184,135	253	273	196,250	303	326	282,690	347	360	290,090	287	296	307,110	252	282	264,805	231	247	195,292	206	216	201,250	285	307	320,255
Brick tenements	20	24	23,550	24	25	36,510	25	29	29,350	44	47	82,220	64	76	93,500	70	75	69,025	48	57	27,210	59	68	101,175	61	63	78,465
Frame tenements	19	19	11,700	25	27	13,481	30	42	19,480	39	50	35,800	44	47	46,375	33	40	26,150	24	29	24,425	26	32	18,350	18	22	17,655
Hotels	7	10	12.550	14	16	42,450	15	18	36,100	10	10	27,000	12	13	20,250	13	13	14,150	17	19	24,200	11	14	37,100	13	14	21,250
Stores	119	135	114,385	85	93	122,975	83	90	118,610	83	89	106,415	113	124	191,355	130	141	176,300	144	162	187,495	116	133	168,935	54	56	166,425
Office buildings	2	2	625	8	8	13,700	9	9	42,270	14	16	25,925	21	23	34,100	16	16	14,560	18	21	23,645	20	22	44,650	12	13	69,575
Manufactories and work-shops	41	45	87,230	36	38	97,775	37	37	92,693	37	40	81.300	38	40	306,285	32	32	128,975	31	32	97,010	34	34	80,920	52	53	188,925
Schools	7	8	23,300	6	6	108,850	7	7	26,350	9	9	18,530	3	3	13,450	4	5	6,700	6	6	143.500	3	3	54.500	9	9	218,080
Churches	8	8	30,915	5	5	16,900	6	6	16,125	..	..	....	6	6	118,400	3	3	7,950	6	6	4,950	4	4	10,000	3	3	3,900
Public buildings	6	8	25,500	5	6	25,800	8	8	94,275	3	3	3,900	10	10	33,450	10	11	74,500	17	17	22,170	19	21	115,975	9	9	212,900
Stables and garages	29	30	17,830	35	35	53,870	30	34	18,465	31	33	50,150	36	40	25,825	18	20	24,875	21	22	52,725	37	38	40,550	34	35	24,400
Miscellaneous	91	99	57,795	18	18	8,630	8	9	3,725	7	7	2,245	16	16	4,335	10	11	2,310	15	22	2,413	12	12	3,950	7	7	1,925
Totals	490	661	$637,395	542	581	$792,341	589	652	$855,233	680	724	$866,760	695	745	$1,266,360	641	701	$864,175	627	693	$886,095	601	654	$966,635	606	646	$1,398,125

Field and Inspection Force.	1909.	1910.	Increase	Decrease.
Classified List of Violations, etc., Filed—				
Violations	2,226	4,117	1,891	......
Unsafe Buildings	424	610	186	......
Fire Escape	5	52	47	......
Total	2,655	4,779	2,124	......
Cost per Inspection	.5657	.8879	......	.1778
Percentage Cost of Inspection on Value of Buildings	.0032	.0025	......	.0007

REPORT OF COMMISSIONER OF PUBLIC WORKS.

Honorable CYRUS C. MILLER, *President:*

Sir—I have the honor to present this report of matters under my jurisdiction for the year ended December 31, 1910, and as introductory thereto deem it well to contrast the former organization of the various bureaus under the jurisdiction of yourself and your predecessors with the new plan of organization put into effect by you on April 1, 1910.

The diagram on Plate 1, outlining the old plan of organization, gives a very clear idea of the chaotic state of affairs and unbusinesslike methods in vogue on January 1, 1910. It will be observed that almost every Bureau head reported direct to the Borough President, and the Commissioner and Assistant Commissioner of Public Works were not in touch with any Bureau but that of the Bureau of Highways—Maintenance. It is not to be wondered that confusion prevailed and the payrolls were unnecessarily high, as it is quite impossible to conduct any business of such magnitude successfully and economically without centralizing the control of the various Bureaus in a businesslike manner, such as outlined on Plate 2, which is a diagram of the present plan of organization of the Bureaus under your jurisdiction. It is quite evident that under the old plan of organization the Borough President must have been tied down with a mass of detail, which would naturally prevent him from doing justice to the important matters which of necessity required his personal attention. Under the old plan there was no executive or controlling office under that of the Borough President, consequently each office was independent in itself, which made it impossible to have the necessary co-operation of the various Bureaus for a successful and economic administration.

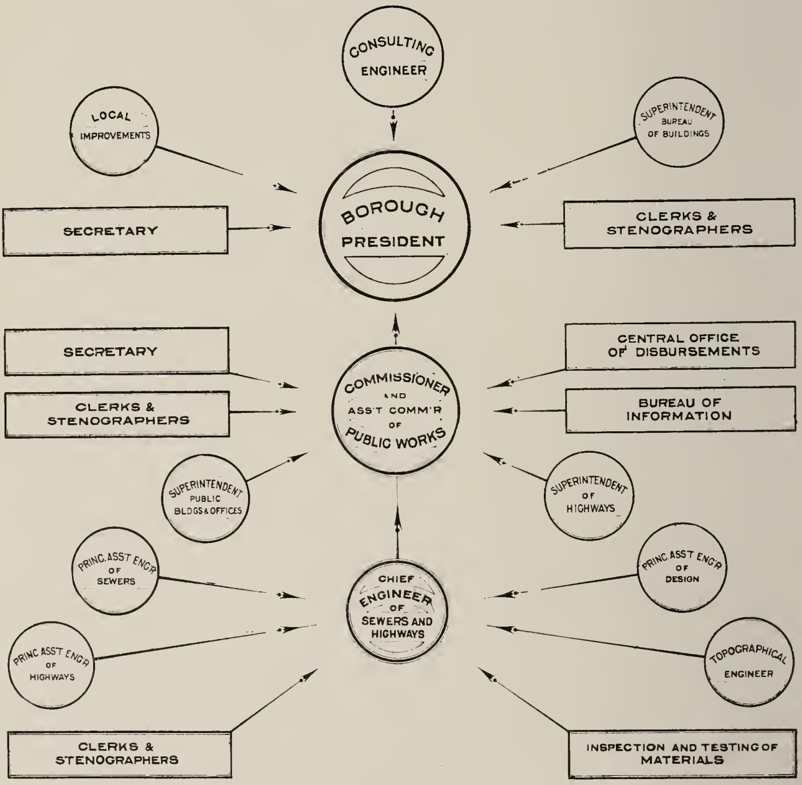
Under the new plan of organization the following changes, other than the rearrangement of the existing Bureaus, were made: A Consulting Engineer was appointed, who acts in an advisory capacity to the President on all important engineering questions involving the engineering work in the Borough, and engineering questions affecting the City at large coming up before the Board of Estimate and Apportionment.

A Bureau of Design was established whose functions are to prepare all plans and specifications in connection with the construction work, as well as estimates, contracts and assessment lists. This work was formerly done in the Bureau of Sewers and Highways, respectively. The engineering divisions are now merged under one head—a Chief Engineer of Sewers and Highways—who is supported by an Engineer of Highways in charge of construction and an Engineer of Sewers in charge of construction, an Engineer in charge of the Bureau of Design and an Engineer in charge of the Topographical Bureau.

A Division of Subsurface Structures was created in the Bureau of Design for the purpose of obtaining all the necessary data relative to underground structures within the Borough and compiling records of the same for future reference.

Special attention has also been given to perfecting the cost data system in the Bureau of Highways—Maintenance, with a view of reducing the cost of the work performed under this Bureau and obtaining a more intelligent control of the supplies for the purpose of compiling records of the operations of the Bureau, showing the unit cost of the work done, which will be used as the basis of future budgetary appropriations.

Probably the most noteworthy change affecting the taxpayers was that effected by you in changing the time of holding the Local Board meetings to the evening. These meetings were formerly held during the day, and consequently it was impossible for


CONSULTING ENGINEER
LOCAL IMPROVEMENTS
SUPERINTENDENT BUREAU OF BUILDINGS
SECRETARY
BOROUGH PRESIDENT
CLERKS & STENOGRAPHERS
SECRETARY
CENTRAL OFFICE OF DISBURSEMENTS
CLERKS & STENOGRAPHERS
COMMISSIONER AND ASS'T COMM'R OF PUBLIC WORKS
BUREAU OF INFORMATION
SUPERINTENDENT PUBLIC BLDGS & OFFICES
SUPERINTENDENT OF HIGHWAYS
PRINC. ASS'T ENG'R OF SEWERS
CHIEF ENGINEER OF SEWERS AND HIGHWAYS
PRINC. ASS'T ENG'R OF DESIGN
PRINC ASS'T ENG'R OF HIGHWAYS
TOPOGRAPHICAL ENGINEER
CLERKS & STENOGRAPHERS
INSPECTION AND TESTING OF MATERIALS

CITY OF NEW YORK

OFFICE OF THE PRESIDENT OF THE BOROUGH OF THE BRONX

ORGANIZATION

Cyrus C. Miller

PRESIDENT OF THE BOROUGH OF THE BRONX.

IN EFFECT MARCH 1910.

many of the citizens interested in the proceedings to attend; such meetings are now held in the evening, beginning at 8 o'clock, and are attended by all heads of Bureaus who are equipped with the necessary information pertaining to the various petitions on the calendar; the innovation has been a great success, not only from the viewpoint of attendance, which has been very large, but also in bringing about a more thorough co-operation between the taxpayers and the officials.

The Bureau of Information established by you and adopted in other Boroughs has been a great convenience to the taxpayers, as it has obviated the necessity of going from Bureau to Bureau in order to obtain the information desired.

The reorganization of the various Bureaus was not perfected before May 1, so that while the new plan of organization has only been in operation for eight months, it is safe to say it has proved a complete success. The work of the various Bureaus is being carried on in an efficient and economic manner, and the future prospects are most encouraging.

Under the supervision of William H. Connell, Assistant Commissioner of Public Works, tar and asphalt oil were applied to a number of the macadam roadways, and proved a great success, both as a dust layer and road preservative. This was an innovation in this Borough and will be carried on more extensively next season, as this method of treating macadam roads has proved more efficacious and economical than water sprinkling.

During the year 134,768 square yards of macadam were given a surface treatment of tar. The method of application was as follows: About one-half (½) gallon of tar to the square yard was applied to half the width of the roadway and left without any covering for twenty-four (24) hours to allow the tar to penetrate into the road. Screenings or coarse sand was then spread over the road in sufficient quantity to take up this excess tar; the traffic was then turned on this side of the road, and the other side was treated in the same manner. The cost of this treatment was six and two-tenths cents ($0.062) per square yard.

There were 242.800 square yards of macadam sprinkled with oil emulsion, about three-tenths (0.3) of a gallon to the square yard being used. To keep the road dustless this treatment should be repeated every ten (10) days, at which rate the cost would be four and one-quarter cents ($0.0425) per square yard per year.

About 776.847 square yards of macadam were treated with asphalt road oil; in some cases one-quarter (¼) of a gallon to the square yard was applied in the Spring and repeated in the Fall. On the roads in the outlying districts about one-half (½) gallon to the square yard was applied. Both methods of treatment kept the roads dustless for the season and helped to a great extent to preserve the road. The method employed in applying the oil was to treat one-half (½) the width of the roadway, and allow the oil a couple of days to penetrate into the road, after which the other half of the roadway was treated in the same manner. No top dressing of sand or screenings was used. The cost, using two applications of one-quarter (¼) gallon each (½ gallon) was three and five-tenths cents ($0.035) per square yard; cost using one application of one-half (½) gallon was three cents ($0.03) per square yard.

The application of tar and screenings does not keep the road dustless for more than a couple of months, but the treatment forms a smooth surface over the roadway, which can be swept from time to time, resulting in a road practically dustless. This method of treatment is being used on residential streets where the application of asphalt oil would be offensive.

During the year there were 207,397 square yards of macadam laid and resurfaced. A great deal of attention was given to the macadam roads; men were constanly at work patching, and every effort was made to keep the roads in good condition. Last season was particularly hard on macadam roads, owing to the lack of rain; the application of oil and tar, however, preserved the roads and kept the same in good condition where this method was employed.

From April 9 to October 4, 148 miles of macadam roads were sprinkled with water twice a day.

A number of experimental pavements were also laid under the direction of the Assistant Commissioner of Public Works on White Plains road, with a view of determining upon a suitable medium-priced pavement for suburban residential streets, to be laid as Class "B" pavement, as provided for in the following bill submitted to the Legislature by you, amending the Greater New York Charter in regard to street pavements:

"An Act to Amend the Greater New York Charter in Relation to the Pavement of Streets and the Payment of the Cost Thereof.

"The people of the State of New York, represented in Senate and Assembly, do enact as follows:

"Section 1. Section nine hundred and forty-eight of the Greater New York

Charter, as re-enacted by chapter four hundred and sixty-six of the laws of nineteen hundred and one, is hereby amended to read as follows:

"Paving and Repaving of Streets; Character of Materials, and Method of Payment Therefor.

"Sec. 948. Street pavements shall be divided into two classes, namely: Class 'A,' or permanent pavements, and Class 'B,' or preliminary pavements. Class 'A' shall include all pavements of sheet asphalt, asphalt block, wood block, granite block, or other materials that shall, from time to time, be designated for this class by the board of estimate and apportionment. Class 'B' shall include all pavements of bituminous macadam and such other pavements of less cost than those used in Class 'A' pavements, that shall from time to time be designated for this class by the board of estimate and apportionment. No street, or portion thereof, that shall have been paved with Class 'A' pavement shall be repaved at the expense of the adjoining property owners, unless a majority of the owners of the property on the line of the proposed improvement shall petition for such repaving at their expense by assessment.

"Whenever a street paved with Class 'B' pavement shall be repaved, the repaving shall be done with Class 'A' pavement, unless owners of property on the line of the proposed improvement petition the local board having jurisdiction for a second Class 'B' pavement, to be laid at the expense, by assessment, of the adjoining property owners, and in such event second Class 'B' pavement shall be laid if said local board so orders, and the board of estimate and apportionment consents. Whenever a Class 'A' pavement shall be laid to replace a Class 'B' pavement that has been laid at the expense of the property owners by assessment, there shall be deducted from the cost of such improvement the cost of the Class 'B' pavement, and the difference shall be paid by assessment upon the adjoining property, and the amount equal to the cost of said Class 'B' pavement shall be borne and paid by the City. But in no case shall the cost of a second or additional Class 'B' pavement be so deducted from the amount to be assessed for the laying of a permanent or Class 'A' pavement.

"The class of the original pavement of any street shall in all cases be determined by the local board having jurisdiction and the board of estimate and apportionment.

"Nothing herein contained shall be construed to relieve or release the owners of property, grantees of the city of New York, of or from any covenants to pave or repave or otherwise physically to improve any street or streets."

This amendment to the Charter has met with great favor throughout the City, as it provides a means for laying a pavement on streets where abutting property is not of sufficient value to stand an assessment for a first-class pavement. Heretofore the Board of Estimate and Apportionment would not authorize any but a first-class pavement, as the repaving was done at the expense of the City. Under former conditions the development of the outlying districts was retarded, as in the Winter it is practically impossible to travel over streets that are not paved, and in the Summer the dust nuisance makes living on the street not only unpleasant, but unhealthful.

A description of the experimental pavements referred to above is submitted herewith as a part hereof.

The payroll saving of the year 1910 compared with that of 1909 is as follows:

Total Payroll Charges—1909, $1,645,989.83; 1910, $1,361,724.89; decrease, $284,264.94.

The payroll charges were paid from the following appropriation and fund accounts:

	1909.	1910.	Decrease.
Budget	$1,176,071 49	$974,761 34	$201,310 15
Corporate stock	265,548 22	200,959 82	64,588 40
Assessment	204,370 12	186,003 73	18,366 39
	$1,645,989 83	$1,361,724 89	$284,264 94

The decrease shown above was made up as follows:

General Administration	$2,537 96	
Highways—Maintenance	134,284 80	
Sewers	25,967 09	
Public Buildings and Offices	3,457 27	
Buildings	18,043 79	
		$184,290 91
Engineering (Preliminary Surveys)—		
Highways	$9,404 47	
Sewers	7,614 77	
		17,019 24

Corporate Stock—		
Topographical Bureau	$26,114 88	
Highways, Engineering	13,502 95	
Sewers, Engineering	24,970 57	
		64,588 40
Assessment—		
Sewers, Engineering	$19,470 91	
Highways, Engineering (increase)	1,104 52	
		18,366 39
		$284,264 94

A number of changes, effecting a saving in the payroll, were not made until April 1 and some as late as May 1; therefore the reduction for the last eight months of 1910, as compared with the last eight months of 1909, will show a still greater percentage of saving.

From the above you will note that the payroll saving of the Bureau of Highways—Maintenance amounted to $134,284.80, or almost one-half the total payroll saving for the year. Notwithstanding this fact the condition of the streets in the Borough during 1910 was a vast improvement over the previous year.

The petitions for public improvements passed by the Local Boards and sent to the Board of Estimate and Apportionment for authorization represent $3,549,995.50 as the total estimated cost of work recommended during the year, made up as follows:

Paving.

	Total Estimated Cost.	
For paving with sheet asphalt, 12 petitions adopted	$198,260 00	
For paving with block asphalt, 18 petitions adopted	225,560 00	
For paving with bituminous macadam, 8 petitions adopted	116,900 00	
For paving with granite blocks, 4 petitions adopted	72,000 00	
		$612,720 00

Regulating, Grading, etc.

For regulating, grading, etc., 51 petitions adopted	$1,947,836 50	
For constructing sewers, 32 petitions adopted	909,415 50	
For laying crosswalk, 1 petition adopted	175 00	
For regulating, grading and paving with asphalt block, 1 petition adopted	69,500 00	
For constructing receiving basins, 11 petitions adopted	7,858 50	
For erecting guard rails, 2 petitions adopted	90 00	
For placing flagging, 1 petition adopted	2,400 00	
		2,937,275 50
Total estimated cost of work recommended during the year 1910		$3,549,995 50

Resolutions were also adopted approving fifteen petitions for acquiring title and sixteen for alteration of map, etc.

The work in the Topographical Bureau, which includes the topographical surveys, laying out of the street system, establishing of grades, monumenting of established street systems and preparation of the maps for the Commissioners of Estimate and Assessment in the proceedings to acquire title to streets and avenues, has been principally confined to the easterly section of The Bronx for the past year, due to the fact that the work of this Bureau in the section of the Borough west of the Bronx River is very nearly completed.

Special attention was devoted by the Topographical Bureau during the year 1910 to the preparation of the final maps of the street system east of the Bronx River. For the development of the area of the East Bronx it is especially desirable that the final maps of the street system of that section of the Borough be completed, and adopted by the Board of Estimate and Apportionment, in order to clear the way for the property owners to petition to have their streets regulated and graded and sewers built, that the vast territory may be in readiness to receive the influx of population which has only been waiting for rapid transit. The New York, Westchester and Boston Railway, which will be running within a year, will be accessible to the central section of this territory. The proposed White Plains avenue extension and the Westchester and Pelham Bay Park extension of the Rapid Transit System of the Greater New York will take care of the westerly and easterly sections, respectively. The Topographical Bureau does the preliminary work on which all the public improvements are based, consequently it is essential to complete this work in order to prepare the way for the growth of the Borough. The territory east of The Bronx is made up of thirty-six (36) sections of the final map, only eight (8) of which were filed prior to 1910, while during 1910 nine (9) sections were completed and sent to the Board of Estimate and Apportionment for adoption. Work on the additional eight (8) sections is well advanced, and the same will be sent to the Board of Estimate and Apportionment for adoption in the near future.

The work carried on under this Bureau has been progressing satisfactorily throughout the year at considerably less expense than the year previous, as shown by the following:

Payroll for 1909	$179,981 22
Payroll for 1910	153,866 34
Saving	$26,114 88

After the resignation of the former Engineer in Charge of Sewers the principal Assistant Engineer of Sewers was put in charge. The position of Superintendent of Sewers was abolished and the duties of that position were consolidated with those of the Engineer of Sewers.

The reduction of the force in the Engineering Division consisted of thirty-seven (37) men, and in Administration five (5) men, whose aggregate salaries amounted to $40,359.84 per year.

In the Maintenance Division there were thirty-nine (39) men dropped, and notwithstanding an increase in the compensation of carts, there will result a net saving of $36,049 annually.

The total savings thus effected in this Bureau (Construction and Maintenance) will amount to $76,408.84 each year.

During the year there were seventeen (17) contracts for sewers and appurtenances and receiving basins begun and completed. These contracts covered the construction of 5,917.7 linear feet of pipe sewer. In addition there was laid under contract 1,009.4 linear feet of brick sewer, 9,523.3 linear feet of concrete sewer, and 36,080.38 linear feet of pipe sewer, at a cost of $569,777.58. There were also constructed ninety-four (94) receiving basins.

The most important piece of sewer construction completed during the year was the storm relief tunnel sewer, from Webster avenue, near Wendover avenue, under the hills in Claremont Park and beyond to the Harlem River, about 230 feet north of High Bridge. The total cost of the construction of this work was $736,449.25.

This sewer was designed to relieve the Webster avenue and Brook avenue sewers during heavy rain storms which had caused damaging floods at various points along the line of these sewers.

About 1,120 linear feet of this sewer was in open cut, and 5,750 linear feet were constructed in tunnel. The maximum depth of the tunnel below the surface was about 140 feet, and this occurred between Aqueduct avenue and Ogden avenue.

Two shafts were provided in this tunnel, although only one was really a shaft proper from which tunnel work was prosecuted. The first shaft was located in the open cut near Inwood avenue and hardly assumed the nature of a shaft until after the work was completed in the open cut and refilled. The other shaft was sunk in Claremont Park, near Morris avenue. The excavation for this was through extremely unstable material, and required very heavy timbering for its full depth. The tunnel at this point is 65 feet below the surface. Easterly from this shaft the excavation in the tunnel ran through the well-known Black Swamp, under Morris avenue. At the time the tunnel was originally located it was assumed from the result of preliminary borings that the line of the sewer had been fixed so that it would be northerly of the swamp, but it was found during construction that the top of the tunnel came in the mud of the swamp. Fortunately the bottom of the tunnel was on rock, thus insuring a good foundation. The work of carrying the tunnel through the mud of the Black Swamp was extremely difficult and attended by great danger. It was prosecuted by means of a shield and poling timbers. The supporting timbers were oak, two (2) feet in diameter.

Since this tunnel has been put in operation it has relieved the former difficulties along the line of the sewer below this point, and we have received no complaints since then from this locality during any of the heavy rains that have occurred.

In order to properly complete the relief, however, it will be necessary to carry another sewer up Webster avenue from the beginning of the storm relief tunnel sewer, inasmuch as the sewer in Webster avenue above this point has not a capacity great enough to care for the water reaching it.

The sewer in Lafayette avenue (East 156th street), between Westchester Creek and Avenue A, and in Avenue A, between Lafayette avenue and Greene lane, and in Greene lane, between Avenue A and Westchester avenue, and in East 172d street, between Avenue A and Parker avenue, and in Parker avenue, between East 172d street and Westchester avenue, was completed in November, 1910, at a cost of $625,433.80. This sewer will drain into the White Plains road outlet sewer when that work is completed, but now has a temporary outlet into Westchester Creek. This is a triple barrel, reinforced concrete sewer, the centre barrel being designed to carry storm water and which will only be in use during excessive rain falls when the storm water will fill up the two side barrels and spill over into the centre barrel through openings near the roof of the sewer and discharge into Westchester Creek, the house sewage during the dry weather flow being carried into the White Plains road sewer, thence out to tide water in the East River.

The White Plains road outlet sewer previously referred to as being in the course of construction extends from the East River at Clasons Point to East 152d street, in East 152d street to Havemeyer avenue, and in Havemeyer avenue, from East 152d street to East 156th street (or Lafayette avenue), in East 156th street to Avenue A (or Zerega avenue). This sewer is designed to serve as an outlet sewer for all of that portion of the Borough of The Bronx lying east of the Bronx River, except the Throggs Neck district and about 1,150 acres lying north of the Bronx and Pelham parkway. It will drain approximately 7,200 acres. This sewer, like the Avenue A and Avenue E sewers, is built of concrete reinforced with steel bars. The cost of this improvement when completed will be about $621,000.

The quantity of work performed by the Maintenance Division, notwithstanding the large reduction of the force, greatly exceeds the amount done during the previous year.

You will observe from a perusal of the report of the Engineer that during the year 1909 there were cleaned 336,615 linear feet of pipe sewers at an average cost of 2.5 cents per linear foot, while during the year 1910 there were cleaned 762,527 linear feet of the same kind of sewers at an average cost of 1.9 cents per linear foot; that during the year 1909 there were 14,446 linear feet of stone drains and culverts cleaned at an average of 21.7 cents per linear foot, while during the year 1910 there were 29,131 linear feet of stone drains and culverts cleaned at an average cost of 12.9 cents per linear foot; also during the year 1909 there were 3,571 receiving basins cleaned at an average cost of $4.60 per basin, while during the year 1910 there were 7,525 receiving basins cleaned at an average cost of $3.57 per basin. This average cost for the year 1910 does not represent the present cost of cleaning receiving basins, which has been reduced to a cost of $2.84 per basin.

The Bureau of Highways is divided into two distinct divisions, each under separate control. The Construction Division is in charge of the regulating, grading and paving of streets, the building of viaducts and bridges over unnavigable streams.

In the general reorganization of the Department there were twenty-five (25) employees dropped from the rolls in this Division whose salaries aggregated $33,270 annually. There were also ten employees, whose salaries amounted to $16,350 annually, transferred to other Bureaus in the Department. This does not represent the savings that will be effected for the year 1911, as many of the changes in the force occurred during the latter part of the year. A comparison of the payrolls for the month of December, 1909, with those of the same month in 1910 will disclose the actual result of the reorganization:

1909, payroll for December	$11,270 00
1910, payroll for December	7,350 00
Saving per month	$3,920 00
Months in year	12
Saving per annum	$47,040 00

During the year there were seventy-three (73) contracts begun and seventy-one (71) contracts completed. The area of streets completed aggregates 19.37 miles, of which 11.87 miles were streets regulated and graded and 7.50 miles were streets paved.

The repaving with granite blocks on a concrete foundation of the roadway of East 151st street, East 157th street, East 159th street, East 160th street, East 161st street and Melrose avenue, was completed in November, and is a most satisfactory improvement. Under this contract there were laid 32,355.6 square yards of old granite blocks, redressed with new heads at a cost of $1.38 per square yard. This did not include the cost of the concrete foundation, which was $1 per square yard. In this contract, as in another completed in May, the joints between the blocks were unusually close and were filled with cement grout, which, when set firmly, binds the pavement in a solid mass and presents quite a smooth surface, thereby causing less noise by traffic than is usual on a stone pavement.

An examination of the granite block pavement contracts for the last five years indicates that on thirty-seven (37) contracts the prices bid average $2.60 per square yard for new blocks laid on a sand foundation, and for new blocks on a concrete foundation the price is about $3.50 per square yard, and these new blocks do not give as smooth a surface as the redressed granite blocks.

I desire to invite your attention to the construction of the reinforced concrete bridge on Jerome avenue, crossing Mosholu parkway. This bridge was planned to provide a passage for pleasure traffic on the park drive without crossing the railroad tracks on Jerome avenue. It is artistic in design and the contractor has shown a desire to assist the Department in enhancing the general architectural effect of the structure.

The Bureau of Public Buildings and Offices has charge of the Municipal Building and other buildings, offices and baths under your jurisdiction, as well as the two Municipal and two Magistrates' Courts, the offices of the Board of Health and the Coroners.

The cleaning and repairs performed under its supervision were thorough and economical.

The Municipal Building, in which are located the several offices of your Departments, a branch office of the Department of Water Supply, Gas and Electricity, a branch office of the Department of Finance, a branch office of the Department of Taxes and Assessments, is overcrowded and dangerous. Arrangements should be made without further delay to remove one or more of these branch offices elsewhere, not only for the convenience of the public, but for the comfort and safety of the employees. The interior of the building is constructed entirely of wood of a highly inflammable quality, and should a fire occur within the structure, would be so speedily destroyed that loss of life might result. During the year many alterations and repairs were completed.

In my office hard wood and glass partitions were erected, dividing it into four offices.

The offices of the Deputy Receiver of Taxes were renovated and painted. Brass grill work and cages were put in place and a temporary system of electric lighting installed, thereby presenting a suitable room for meetings of the Local Boards held in the evenings.

The offices of the Consulting Engineer and the Collector of Assessments and Arrears were enlarged by the removal of partitions.

An office was furnished for the use of the Marriage License Bureau.

The provisions of a recent act of the Legislature made it necessary to change the equipment in the Magistrates' Courts, all of which was performed by the Bureau.

A new system of electric lighting was installed in the Municipal Court House in Westchester by the employees of the Bureau, at a cost of $400, whereas $750 was the lowest estimate furnished by contractors.

The entire window glass in the new Municipal Building in Williamsbridge was removed and reset, on account of defective work done when the structure was built.

Six branch offices were abolished during the year, resulting in a saving of $7,090 in rentals.

The Sewer Engineer's office in Unionport was removed from Castle Hill avenue, where a rental of $900 per annum was paid, to premises at 1518 Purdy street, where a rental of only $480 is paid.

The interior public bath on Elton avenue and 156th street was open daily, including Sunday, and was patronized during the year by 256,557 males and 89,879 females.

The free floating bath borrowed from the Borough of Manhattan, and moored at the foot of East 132d street, was opened to the public on July 28 and closed September 30, 1910. During that period 72,047 persons used the bath, of which 25,603 were females and 46,444 were males.

The Superintendent recommends that two baths be provided for next season, and I heartily concur in his recommendation.

The following table will show the value of supplies bought and the cost of repairs made, as well as the total amount of salaries and wages paid during the past two years:

Public Buildings and Offices:

Supplies and Repairs—1910, $14,889.44; 1909, $11,248.64; increase, $3,640.80.

Salaries and Wages—1909, $62,303.12; 1910, $53,365.35; decrease, $8,937.77.

Summary—Salaries and wages, decrease, $8,937.77; supplies and repairs, increase, $3,640.80; net decrease, $5,296.97.

Respectfully, THOMAS W. WHITTLE, Commissioner of Public Works

OFFICE OF GENERAL BOOKKEEPER.

February 9, 1911.

Mr. THOMAS W. WHITTLE, *Commissioner of Public Works:*

Dear Sir—I transmit herewith report of the operations of the office of the General Bookkeeper for the year 1910, showing requisitions on the Comptroller, and cash receipts from the various Bureaus for said period, subdivided into quarterly divisions.

Respectfully,
JOHN OSBORN, General Bookkeeper.

Requisitions on the Comptroller, Year 1910.

	First Quarter.		Second Quarter.		Third Quarter.		Fourth Quarter.		
	Appropriations.	Bonds.	Appropriations.	Bonds.	Appropriations.	Bonds.	Appropriations.	Bonds.	Total.
General Administration	$16,060 17		$15,882 39		$18,417 92		$18,743 96		$69,104 44
Bureau of Highways, Maintenance	57,217 79	$349 97	162,252 16	$9,829 76	216,837 27	$2,999 78	160,514 33	$899 07	610,900 13
Bureau of Highways, Engineering Division	14,263 71	66,206 86	9,445 89	73,922 33	9,970 21	143,855 61	12,069 90	135,210 27	464,944 78
Bureau of Sewers, Maintenance	33,092 76		35,656 36		37,712 69		33,489 85		139,951 66
Bureau of Sewers, Engineering Division	14,061 75	19,690 06	10,874 19	53,566 36	11,681 38	64,067 29	10,847 34	19,171 34	203,959 71
Bureau of Public Buildings and Offices	18,152 05		16,501 15		14,415 70		17,084 67		66,153 57
Public bath, Elton avenue and 156th street	3,359 34		3,913 16		4,034 28	1,646 54	3,712 62		16,665 94
Bureau of Buildings	30,666 04		29,897 23		29,462 55		24,085 74		114,111 56
Fund for Topographical Bureau		28,256 91		14,849 83		29,574 69		23,785 35	96,466 78
Fund for Street and Park Openings		17,846 67		11,321 91		19,706 08		12,660 08	61,534 74
Street Improvement Fund, assessment property benefited		212,218 91		380,409 36		494,622 23		560,067 80	1,647,318 30
Construction of Court House, etc		13,013 80		47,205 00		27,200 00		38,420 00	125,838 80
Installation lighting, Borough Hall						235 00		5 00	240 00
		$357,583 18		$591,104 55		$783,907 22		$790,218 91	$3,617,190 41
Restoring and Repaving, Special Fund		6,363 76		7,473 87		10,481 89		12,889 63	37,209 15
Unsafe Building Fund						48 75		103 95	152 70
	$186,873 61	$363,946 94	$284,422 53	$598,578 42	$342,532 00	$794,437 86	$280,548 41	$803,212 49	$3,654,552 26
Special Revenue Bonds.									
Free floating bath								214 50	214 50
Five (5) automobiles								9,000 00	9,000 00
Street signs								1,006 00	1,006 00
	$186,873 61	$363,946 94	$284,422 53	$598,578 42	$342,532 00	$794,437 86	$280,548 41	$813,432 99	$3,664,772 76

Cash Receipts, Year 1910.

	First Quarter.	Second Quarter.	Third Quarter.	Fourth Quarter.	Total.
Permits	$17,255 26	$25,962 79	$23,260 05	$23,763 93	$90,242 03
Security Deposits......	3,922 00	7,628 00	7,276 00	4,704 16	23,530 16
	$21,177 26	$33,590 79	$30,536 05	$28,468 09	$113,772 19

REPORT OF BUREAU OF HIGHWAYS—MAINTENANCE.

March 8, 1911.

Mr. THOMAS W. WHITTLE, *Commissioner of Public Works:*

Dear Sir—I have the honor to submit this, my report of the operations of the Bureau of Maintenance of Highways, Borough of The Bronx, for the year 1910; also a statement showing the transactions of said Bureau during the three months ending December 31, 1910:

Disbursements and Titles of Budgetary Accounts, 1910.

Administration	$36,932 24
Maintenance of Highways, Salaries	20,821 54
Removing Incumbrances, "Salaries of Inspectors"....	367 58
Maintenance of Highways, Wages	354,858 21
Hired Teams and Carts......	90,131 68
General Supplies............	2,462 27
Materials for Repairs and Replacements by Departmental Labor.............	80,053 82
Repairs and Replacements by Contract or Open Orders...	8,550 63
Apparatus, Machinery, Vehicles, Harness, etc., including Care and Storage......	2,305 44
Maintenance of Automobiles, including Equipment, Care and Storage..............	3,472 90
Forage, Shoeing and Boarding Horses	4,058 31
Fuel	848 75
Contingencies	2,212 67
Total...............	$607,076 04

Comparison of Expenditures.

	1909.	1910.
Administration ..	$48,091 88	$36,932 24
Maintenance of Highways, Salaries	17,951 07	20,821 54
Removing Incumbrances, "Salaries of Inspectors"	2,808 39	367 58
	$68,851 34	$58,121 36

The foregoing shows a decrease of $10,729.98 in the total amount of salaries paid in 1910, as compared with the expenditures for similar line of work in 1909.

	1909.	1910.
Maintenance of Highways, Wages	$431,804 27	$354,858 21
Hired Teams and Carts	93,718 55	90,131 68
Revenue Bonds, "Labor"	13,912 91	....
Revenue Bonds, "Trucks"	341 78	....
Total expenditure for Salaries and Wages ..	$539,777 51	$444,989 89

The decrease in the expenditures for wages of Foremen, Mechanics, Laborers and trucks in 1910, compared with 1909, amounts to $94,787.62.

Recapitulation of Expenditures.

	1909.	1910.
Salaries	$68,851 34	$58,121 36
Wages	539,777 51	444,989 89
Material and Contingencies	43,068 97	103,964 79
Totals.....	$651,697 82	$607,076 04

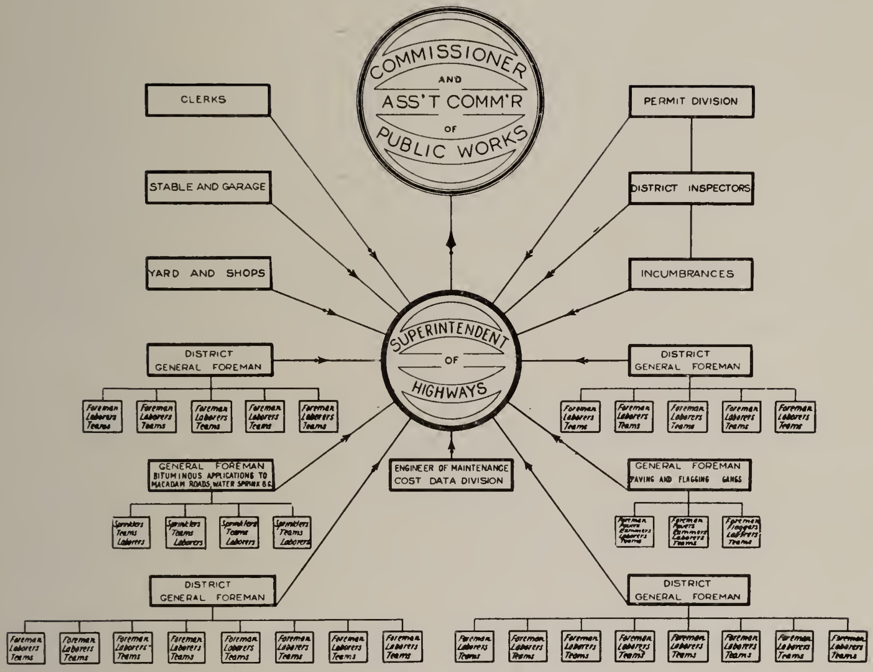
Net decrease for 1910, including all of the above expenditures, compared with 1909, is $44,621.78.

Comparison of Expenditures.

	1909.	1910.
Administration ..	$48,044 80	$36,932 24
Wages and Material	583,949 82	559,889 31
	$631,994 62	$596,821 55

The 1909 appropriation was not itemized. The money authorized for wages and material for that year was one lump sum. Of this sum $543,473.89 was used for wages; the remainder, $40,475.93, was expended for material.

ORGANIZATION.



BUREAU OF HIGHWAYS
MAINTENANCE

In the reorganization of the working force and centralization of repair shops, stables and incumbrance yard, as instituted in the early part of 1910, this Bureau was enabled to considerably reduce the force without impairing the efficiency of the work within its jurisdiction.

This change has resulted in a reduction of the wage account for 1910 of $84,510.93.

Summary of work performed during the year 1910:

Macadam Pavement.	Square Yards.
New macadam laid	20,473
Macadam resurfaced	186,919
Macadam repaired	476,655
Macadam cleaned	9,215,030

Macadam roads in use on December 31, 1910, 135 miles.

Roads Sprinkled with Water.

Main thoroughfares, both earth and macadam, were sprinkled with water, when necessary, during the season from April 9 to October 4, 1910, to the extent of 148 miles.

Roads Sprinkled with Oil.

Macadam roads were sprinkled with oil to the extent of 1,224,863 square yards, or 52 miles.

Earth Roads.

The care and maintenance of earth roads include 185 miles of both ungraded and regulated and graded streets. The nature of the work required to keep this class of road in proper and sanitary condition consists of cleaning, removing and disposing of rubbish of all description which is strewn upon same by residents, passing trucks, etc. Rainfalls have a most destructive effect upon dirt thoroughfares, especially those having steep grades. Large gullies and washouts result from such storms, and to avoid accidents to life and limb, much of the time of our road force has to be employed in hauling road-fill and repairing these defects.

The repairs to dirt streets during the year were as follows:

	Square Yards.
Earth roads cleaned and repaired	9,931,230
Earth roads repaired with native stone	93,597
Earth roads scraped and leveled off by machine	99,470

The earth fill and stone used in conjunction with above repairs were obtained free of cost, the only expense to the City being for hauling the same.

Gutter Work.

Earth gutters were opened, graded and cleaned and paved gutters of macadamized streets cleaned to the extent of 3,039.75 miles.

Paving Work.

	Square Yards.
Granite blocks on sand repaired	134,766
Granite blocks on concrete repaired, T. & G.	4,107
Brick pavement repaired	190
Gutters paved with granite blocks	1,723
Cement pavement repaired	406
Asphalt block pavement repaired	17,155
Wood block pavement repaired	247
Iron slag pavement repaired	121

Other items of work done during the year were as follows:

Native stone gutters made, square yards	3,859
Native stone gutters repaired, square yards	140
Pavement cleaned, square yards	33,508
Crosswalks reset, square yards	85,387
Flagging reset, square yards	19,156
Curb reset, linear feet	8,621
Native stone curb set, linear feet	825
Sidewalks formed and covered with ashes, square yards	842,412
Plankwalks laid, linear feet	900
Plankwalks repaired, linear feet	13,529
Plankwalks cleaned, square yards	87,869
Native stone crosswalks laid, square yards	120
Crosswalks cleaned, square yards	30,697,230
Stone steps repaired, square yards	9,607
Wooden steps built, square yards	590
Temporary wooden steps made and placed over stone steps, square yards	5,048
Retaining walls built, cubic yards	243
Guard rails, new, erected, linear feet	9,808
Monument boxes set, number	25
Box drains set, linear feet	8
Fallen trees removed, number	4
Street signs painted, repaired and set, number	56
Weeds, grass, brush, cut and removed, square feet	1,064,782
Snow and ice cleared from crosswalks, gutters, etc., square feet	933,932
Bridges replanked and repaired, square feet	2,482
Roadways and walks of bridges cleaned, square yards	5,348,759
Stone and wooden steps cleaned, square yards	506,525

In connection with work performed upon streets enumerated heretofore, there were used 22,000 cubic yards of trap rock stone, 8,000 cubic yards of screenings, 44,368 cubic yards of earth and stone-fill, 1,758 cubic yards of sand, 6,628 cubic yards of ashes, 300 cubic yards of gravel and 875 loads of paving blocks.

Revenue.

Comparative Statement of Years

	1909.	1910.
Permits issued for various purposes	18,562	18,786
Permits revoked	4	17
Moneys received for sewer connections, taking up street pavement, etc.	$90,053 29	$105,763 29

(For Shop Work, see Quarterly Reports.)

Highways Maintenance.

The following is a report of the transactions of the Bureau of Maintenance, Bureau of Highways, Borough of The Bronx, for the quarter ending December 31, 1910:

Macadam.

New square yards	6,022
Resurfaced, square yards	95,740
Repaired, square yards	114,375
Cleaned and scraped, square yards	2,572,035
Paving: Granite block pavement on concrete, square yards	341
Granite block pavement repaired, square yards	12,962
Brick pavement repaired, square yards	18
Granite block gutters, new, square yards	1,100
Native stone gutters, new, square yards	891
Unpaved streets: Earth roads repaired, etc, square yards	2,400,615
Earth roads repaired with native stone, square yards	11,868
Gutters opened: Gutters opened and cleaned, linear feet	8,246,756
Curbs: Bluestone curbs reset, etc., linear feet	3,914
Native stone curbs, new	825
Sidewalks: Flagged sidewalks, repaired, etc., square feet	1,900
Earth sidewalks repaired, etc., square feet	821,884
Earth sidewalks repaired with ashes, square feet	90,262
Plankwalks: Plankwalks laid, new, linear feet	600
Plankwalks repaired, linear feet	4,726
Plankwalks cleaned, snow removed, etc., square feet	87,869
Crosswalks: Crosswalks reset, repaired, etc, square feet	19,324
Native stone crosswalks, new square feet	120
Crosswalks cleaned on macadamized and unpaved streets, square feet	29,259,860
Retaining Walls: Retaining walls built new, cubic yards	124
Guard rails: Guard rails, new, erected along retaining walls and embankments, linear feet	2,080
Guard rails repaired, linear feet	2,076
Monument boxes: Monument boxes, set, new, number	5
Stone steps and wooden steps: Stone steps and platforms repaired, square feet	432
Wooden steps built, new, square feet	225
Wooden steps built over stone, square feet	5,048
Stone and wooden steps swept and cleaned, square feet	19,207
Street signs: Iron post reset, number	1
Snow and ice: Snow and ice removed from gutters, basins, culverts and from hydrants, square yards	463,662
Weeds, brush, etc.: Weeds, brush, etc., cut and removed and properly disposed of, square yards	84,564
Materials: Earth, cubic yards	9,561
Stone, cubic yards	1,770
Sand, cubic yards	615
Ashes, cubic yards	645
Broken trap-rock stone, 1½-inch, cubic yards	4,150
Trap-rock screenings, cubic yards	600
Paving blocks, loads	299
Bridges: Bridges replanked, 3, square feet	2,730
Bridges repaired, 27, square feet	3,361
Bridges cleaned and swept	45

The roads and sidewalks of these bridges have been swept and cleaned, many of them daily, the area representing about 33,333 square feet.

Sprinkling of Main Thoroughfares.

During the quarter the main thoroughfares of the Borough of The Bronx have been sprinkled daily, when necessary, to the extent of 148 miles.

Memorandum in Reference to Mileage—Macadamized Roads.

The total mileage of macadamized streets in the Borough of The Bronx revised to date: 135 miles. Included in the above is work done by the Maintenance Bureau during the quarter as follows:

New macadam, 1.36 miles.

Earth Roads.

The total mileage of earth and other roadways in the Borough of The Bronx, revised to date: 185 miles.

The total mileage of the two classes of roadways as above set forth are approximate only as frequent changes in the classification are necessitated by the progress of contract work both for regulating and grading and for sewers. For information relative to the various classes of pavement

see report of the Chief Engineer of Sewers and Highways.

Carpenter's Work—New: Frame for horse road roller, 1; wooden horses, 12; mortar boards, 8; halter blocks, 12; sand boxes, 11; wooden steps at various points covering stone steps during the winter, 55,048 square feet; wooden steps built, new, 375 square feet; flooring laid in Department stables, 540 square feet; oil shed in Department yard, 640 square feet; shed for steam rollers, 3,200 square feet; boards for chauffeur's use, with roller, 2.

Repairs: Monitors, 3.

Wheelwrights' Work—New: Monitor poles, 4; whiffletrees, sets, 5.

Repairs: Monitors, 4; carriages, 6; yard wagon, 1; tool cart, 1; monitor running gear, 4.

Machinist's Work—Repairs: Monitors, 38; steam rollers, 4; autos, 11; iron carts, 4; carriages, 16; putting water pipes in stable, 40 linear feet; putting water pipes in steam roller shed, 200 linear feet.

Blacksmith's Work—New: Wheel tires, 6; pole chains, 4; springs for tires, 2; hooks for stable windows, 15; strap bolts for monitors, 46; hub rings for monitors, 4; wheel wrench, 1; monitor braces, 4; axle clips, 4; monitor brake handle, 1; hooks and eyes for autos, 2; monitor rod, 1; tool box straps, 4; monitor brake guard, 1; tool box hook and staple, 1; monitor brake shoes, 4; angle irons, 20; monitor plates, 2; lamp bracket for stable, 1; braces for auto, 2; lamp bracket for carriages, 3.

Repairs: Monitor brakes, 5; auto springs, 2; monitor running gear, 4; yard wagon spring, 1; monitor axles, 2; clips for yard wagon, 1; monitors, 6; yard wagons, 2; autos, 3; horse road roller, 1; hooks for stable, 4; steam rollers, 3; hooks for office, 3; lamp bands for stable, 2.

Tools steel-pointed and sharpened: Picks, 606; crowbars, 45; grubs, 358; wheelbarrows, 3; plow, 1; cold chisels, 87; point chisels, 210; rock wedges, 14; sounding bars, 34; hand drills, 3; roller picks, 57; pitching tools, 11.

Painters' Work—Monitors, 18; sign, 1; iron cart, 1; document boxes, 4; horse road rollers, 2; shelves in garage, 6; tool boxes, 3; signs in garage, 6; sand boxes, 11; autos, 4; bands for fire extinguishers, 6; rolling board for chauffeurs, 2.

Tabulated Statement of Time.

The time made by the working force of the Bureau of Maintenance, Bureau of Highways, Borough of The Bronx, in performing the work hereinbefore noted during the quarter ending December 31, 1910, is as shown in the following tabulation, the time being expressed in days and fractions thereof:

Title.	October.	November.	December	Totals.
Superintendent	31	30	31	92
Clerks	403	390	403	1,196
General Inspectors	62	60	62	184
Messengers	124	120	124	368
Attendants	139	140	151	430
Cashier	31	30	31	92
Typewriting Copyist	31	30	31	92
Assistant Engineer	31	30	31	92
Rodmen	62	60	62	184
Leveler	31	30	31	92
Mechanical Draftsman	31	30	31	92
Inspectors of Regulating, Grading and Paving	322	312	336	970
Foremen	895⅞	816⅜	914⅝	2,626⅞
Assistant Foremen	178⅛	....	....	178⅛
Carpenters	109	116½	127½	353
Wheelwright	24	24	26	74
Machinists	50	48	52	150
Painters	75	72	76½	223½
Engineers of Steam Rollers	115⅛	98½	104	317⅝
Auto Enginemen	122	118	124	364
Blacksmith	25	23½	26	74½
Pavers	461¾	425⅛	161¾	1,048⅝
Rammers	227¼	210⅝	85½	523⅜
Flaggers	90	106⅜	108	304⅜
Carts	45⅜	31¼	4	80⅝
Teams	1,456¼	953½	328⅜	2,738¼
Laborers	10,813½	9,950⅝	11,117 1-7	31,881¼

Yard of the Bureau of Maintenance, Highways.

Repair Shop.

The following statement shows the character and number of permits issued during the quarter ending December 31. 1910:

Street Openings—For sewer connections, 296; for sewer repairs, 57; for connecting hydrants to sewer, 43; for enlarging manholes, 2; for constructing public sewer, 6; for lowering house sewer, 7; for building catch basins, 4; for lowering spur in sewer, 1; for laying surface drain, 1; for connecting receiving basin to sewer, 2; for disconnecting from private and connecting with public sewer, 2; for connecting leaders to drain, 1; for repairing manholes, 2; for additional sewer connection, 1; for Croton connections, 461; for Croton repairs, 201; for laying gas mains, 44; for laying gas service pipes, 286; for repairing gas mains, 38; for repairing gas service, 345; for water mains, 10; for laying subways, 21; for repairing subway, 1; for laying sidewalk, 85; for repairing sidewalk, 37; for erecting poles, 150; for replacing poles, 89; for straightening poles, 13; for removing poles, 10; for moving poles, 20; for lowering curb and paving sidewalk for driveways, 8; for cutting down and paving sidewalk for driveways, 24; for subsidiary connections, 117; for erecting iron awning posts, 4; for replacing broken frog, 1; for replacing broken rails, 2; for replacing track joints, 11; for constructing short railroads, 4; for erecting trolley poles, 2; for removing crossovers, 2; for installing crossovers, 4; for laying temporary tracks, 2; for relaying house sewer, 1; for laying surface water drain, 1; for temporary sewer connections, 6; for erecting fence, 5; for repairing pavement, 1; for open areaways, 12; for setting bluestone curb, 1; for removing earth from roadway, 1; for moving tracks, 1; for removing pipe left by subway contractor, 1; for constructing baker's ovens (temporary), 2; for constructing vaults (temporary), 3; for erecting sidewalk shed, 1; for constructing vaults, 16; for planting trees, 2; for laying reinforced concrete curb, 1; for laying anchor in street for guy rope, 3; for erecting sign post, 1; for removing pipes, 2; for setting "dead man" for guy rope, 2; total, 2,480.

Miscellaneous Permits—To place building material, 176; to cross sidewalk with teams, 135; to move buildings, 4; to place concreting material on street, 18; to place on street for hoisting purposes, 71; to place boiler on street to operate steam drills, 9; to move steam shovel along roadway, 2; to place portable scale on street, 2; to dump clean earth fill, 7; to lay temporary rails to move locomotive, 1; to place tar kettles on street, 12; to place tool houses on street, 46; to erect pole scaffold, 1; to erect temporary hoisting shafts, 1; to block off sidewalk, 5; to place earth on street, 2; to erect speakers' stands, 5; to place sign on lamp post, 1; to place rubbish on street, 1; to swing banner, 1; to place pedestal on sidewalk for church fair, 1; to place lumber on street, 1; to place granite block on sidewalk, 1; to lay temporary rails to move steam shovel, 1; to place waiting car on street, 1; to back truck across sidewalk, 1; to place crushed stone on street, 1; to place structural steel on street, 1; to repair bridge, 1; to place house moving timber on street, 4; to place stiff leg derricks on street, 2; total, 518.

Total number of permits issued, 2,988; total number of permits renewed, 944; total number of permits revoked, 6; total, 3,948.

Revenue.

Statement showing the amount of money received during the quarter ending December 31, 1910:

For permits to make sewer connections	$5,353 58
For restoring pavement over sewer openings	4,794 29
For restoring pavement over water openings	2,554 04
For restoring pavement over miscellaneous openings	736 49
For vault privileges	5,349 77
For shed permits	5 00
	$18,793 17
Deposits on permits to cross sidewalks, etc., "Security"	4,704 16
Redemption of seized incumbrances	3 16
Grand total	$23,500 49

Respectfully, ARTHUR J. LARGY, Superintendent of Highways.

BUREAU OF INFORMATION.

April 5, 1911.

Mr. THOMAS W. WHITTLE, *Commissioner of Public Works:*

Dear Sir—I herewith submit report of the Bureau of Information for the year ending December 31, 1910:

This Bureau was established in May, 1910. Its object is to furnish information to the public respecting local improvements and matters which have been acted upon by the various Local Boards. The scope of the questions and information usually sought and given embrace every phase of public improvements, from their inception to their conclusion, that come under the jurisdiction of the Borough President, and other matters of a public character relating to other Departments which are replied to if the inquiry is directed to the Borough President.

These questions refer to: Petitions; the laying out of streets, avenues and public places; titles to streets and the date of vesting title, confirmation of the same; when title proceedings were initiated in the Board of Estimate; appointment of Commissioners of Estimate and Assessment and their names; status of proceedings of these Commissioners; the progress and status of various proceedings in the Board of Estimate and Apportionment; the widening, regulating, grading and paving of streets, etc.; construction of sewers; advertised public lettings; execution of contracts; when work was begun and finished; when assessment lists were forwarded to the Board of Assessors; dates when assessments were confirmed; ceding of land for street purposes; questions relating to taxes and assessments; to pending and future assessments; to corporate stock issues for public improvements, public schools, etc., etc. In order to answer these questions, reference must be made to public records which are kept to date. About 200 communications were answered, and phone calls and visitors averaged about 75 per month. A register of the names and addresses of those seeking information is kept on hand for inspection. Formerly, citizens were compelled to go to the various Departments for information which is now centralized in this Bureau.

Respectfully, HENRY L. BRIDGES.

Bureau of Public Buildings and Offices.

February 15, 1911.

Mr. T. W. Whittle, *Commissioner of Public Works:*

Dear Sir—I herewith present the following report of the transactions of the Bureau of Public Buildings and Offices during the year 1910, which I respectfully submit for your consideration.

Upon assuming office in the early part of January there was provided in the Budget for 1910 sufficient money to employ a mechanical force consisting of 1 Foreman of Mechanics, 2 Carpenters, 1 Painter, 1 Plasterer, 1 Tinsmith, 1 Machinist, 1 Housesmith, 1 Bricklayer and 1 Mechanics Helper. The aggregate salaries of these employees would have been approximately $14,350 for the year.

This force I immediately reduced to 2 Carpenters and 1 Housesmith, and abolished the position of Foreman of Mechanics on March 31, as there was not sufficient work to warrant me to continue them in their respective positions. The money thus saved was transferred to the appropriation entitled "Laboring Force," as the same was insufficient to continue the female Cleaners, Laborers, etc., in employ during the entire year. The work which was formerly done by that portion of the mechanical force which was suspended and taken out of the Budget was done by contractors in the open market at a cost of about $2,000.

Some of the work done which I might call to your attention was the erecting of partitions in the large office (Room 13), on the second floor of the Municipal Building, dividing it into four (4) offices. The painting and renovating of the room assigned to the Deputy Receiver of Taxes, putting in new brass grill work and erecting cages for Cashier, etc., and installing a temporary electric light system in said office. This latter improvement made it possible to have the meetings of the Local Boards held in this room as the room formerly used was not large enough to accommodate the large number of taxpayers that attend these meetings.

The rooms occupied by the Collector of Assessments and Arrears were enlarged by the removing of existing partitions, as were the offices of the Consulting Engineer.

The establishing of a Marriage License Bureau in the Borough of The Bronx, necessitated the building and equipping of a suitable office to accommodate the public.

Under an act of the Legislature of 1910, considerable alterations and changes in the City Magistrates' Courts were made necessary to comply with said law. All of this work was performed by this Bureau to the entire satisfaction of Hon. William G. McAdoo, Chairman of the Board of City Magistrates.

The old lighting system which was in use in the Municipal Court House at Westchester for a number of years, and which was very unsatisfactory and often complained of, was removed and a new system of electric lighting was installed. This work was done at a cost of about $400 by the employees of this Bureau and was approved by the Department of Water Supply, Gas and Electricity. The estimated cost given by a contractor to do the work was $750.

I would also state that at the new Municipal Building at Williamsbridge, which was built by Waters & O'Connell, it was necessary to remove and reset every window glass in the entire building, as the same were in a very dangerous condition, and were falling out.

In the matter of telephone service, I would state that during the year we had the private telephones removed from the following branch offices and had direct wires installed which connected them with the switchboard in the main office building:

Municipal Building, Williamsbridge.
Branch Offices, 507 Tremont avenue.
Bureau of Highways (stable and garage), Webster avenue and 181st street.

These direct lines gave an unlimited number of messages to the main office and placed the above-mentioned offices under charge of our Telephone Operator.

The following is a list of branch offices and yards which were abolished during the year, and a saving of about $7,090 per year was thereby effected:

Tremont avenue, near Southern boulevard (yard)	Rent,	$400 00	per annum
Prospect place and Anthony avenue (stable)	Rent,	900 00	per annum
143d street, 144th street and 145th street (yard and stable)	Rent,	3,450 00	per annum
4179 3d avenue (branch office, Engineers)	Rent,	1,200 00	per annum
Macombs road and Jerome avenue (branch office, Engineers)	Rent,	360 00	per annum
Grand Boulevard and Concourse and 184th street (branch office, Engineers)	Rent,	360 00	per annum

The branch office of Engineers, Bureau of Sewers, at Castle Hill avenue, Unionport, at a rental of $900 per annum, was vacated, and premises at 1518 Purdy street were rented instead, at a rental of $480 per annum.

These figures are furnished for your information, as the saving thus effected will not appear in any of the Budget items under the President of the Borough, as the rents are chargeable to an appropriation entitled "Rents" under the Comptroller.

The interior public bath located at Elton avenue and 156th street was open every week day from 6 a. m. to 10 p. m., and on Sundays from 6 a. m. to 1 p. m. That the bath has been very well patronized is shown on report, which gives the total number of bathers for the year as 89,879 females and 256,557 males.

The free floating bath which was located at 131st street and East River was open from July 28 to September 30, both inclusive, and was very much appreciated by the residents of the lower section of the Borough.

The number of persons to take advantage of this bath was 25,603 females and 46,444 males, although it was only open three and one-half days a week to males and females, respectively I would respectfully recommend that if possible two (2) baths be procured for use during the coming season. This would afford seven (7) days per week to each and the cost to maintain these baths is trifling when you consider the benefit which is derived therefrom by the public. Yours respectfully,

ROGER W. BLIGH, Superintendent, Bureau of Public Buildings and Offices.

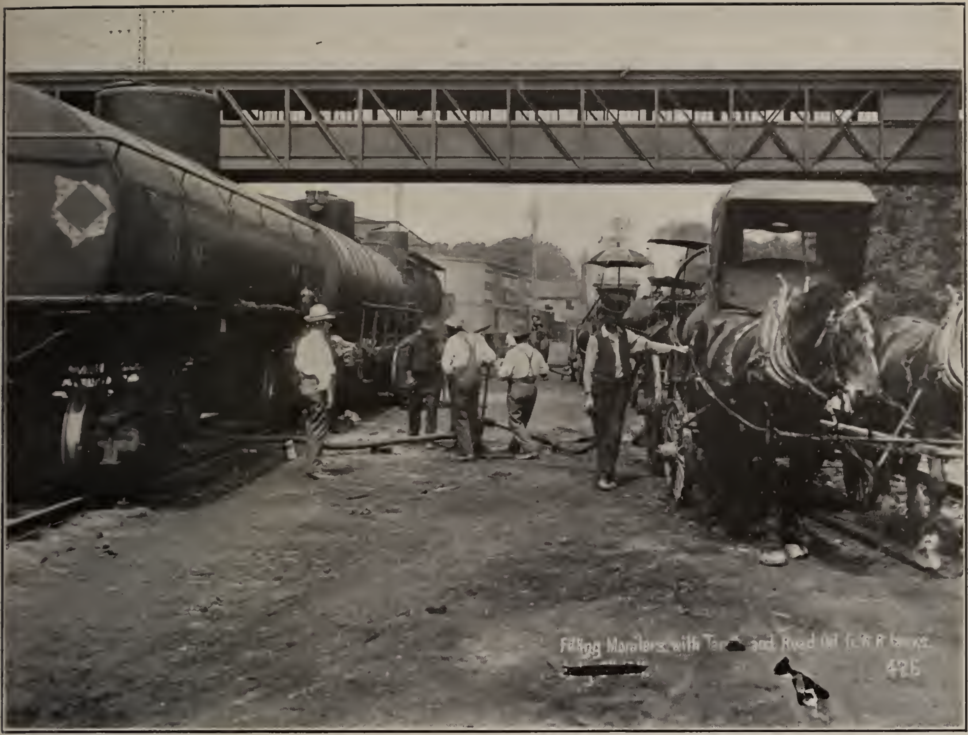
The following buildings and offices in care of this Bureau have been kept clean and in repair for the year 1910:

Municipal Building, Crotona Park; the First District Municipal Court, Westchester; the Second District Municipal Court, 162d street and Brook avenue; the Sixth District City Magistrates' Court, 162d street and Brook avenue; the Eighth District City Magistrates' Court, Westchester; office of the Coroners, 177th street and 3d avenue; Branch Municipal Building, Williamsbridge; office of Bureau of Highways, 507 Tremont avenue; office of Bureau of Sewers, 507 Tremont avenue; office of Bureau of Sewers, 1518 Purdy street; office of Bureau of Sewers, 933 East 169th street; office of Bureau of Sewers, Broadway and 242d street; office of Board of Health, St. Pauls place and 3d avenue; repair shops and stables, Bureau of Sewers, 181st street and Webster avenue; repair shops and stables, Bureau of Highways, 181st street, Park and Webster avenues; Public Interior Bath, Elton avenue and 156th street.

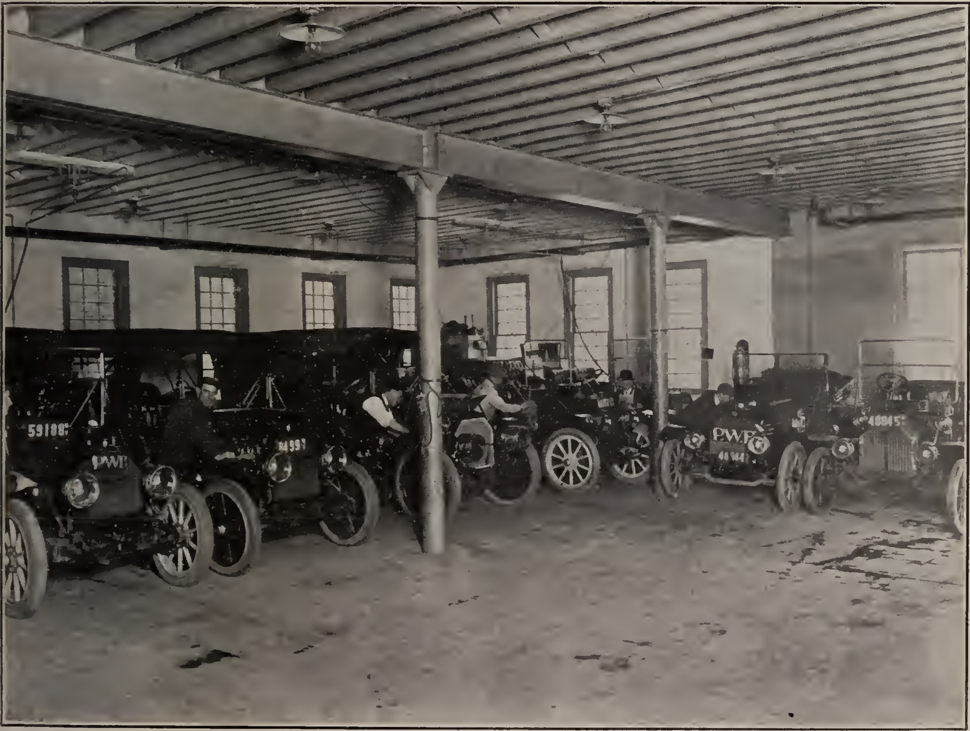
The following buildings and offices were in care of this Bureau from January 1, 1910, to and including the dates set opposite each place:

Office, Bureau of Highways, 4179 3d avenue, February 17, 1910; office, Bureau of Highways, Concourse and 184th street, August 1, 1910; stables, Bureau of Highways, Anthony avenue and 175th street, January 26, 1910; stables, Bureau of Highways, White Plains avenue, March 29, 1910; stables, Bureau of Highways, 143d street and College avenue, February 10, 1910; yard and repair shops, Highways, 144th street and 145th street and College avenue, May 1, 1910; office, Bureau of Sewers, Castlehill and Ellis avenues, June 7, 1910.. office, Bureau of Sewers, Macombs road and 169th street, March 3, 1910.

The floating bath, located at 131st street and East River, was in care of this Bureau from July 28 to October 1, 1910.



Filling Monitors With Tar and Road Oil From R. R. Tracks.



Automobile Garage.

The following shows the working force of this Bureau as employed during the months of January and December, 1910:

January, 1910.	
Superintendent	1
Clerk	1
Foreman of Mechanics	1
Foreman of Laborers	1
Assistant Foremen of Laborers	2
Lineman	1
Telephone Operators	2
Attendant (monthly)	1
Carpenters	2
Housesmith	1
Engineers	2
Firemen	2
Stokers	2
Coal Passer	1
Painter	1
Tinsmith	1
Female Cleaners	39
Laborers	25
Watchmen	4
Attendants (weekly)	2

December, 1910.	
Superintendent	1
Clerk	1
Foreman of Laborers	1
Assistant Foreman of Laborers	1
Lineman	1
Telephone Operator	1
Carpenters	2
Housesmith	1
Engineers	2
Firemen	3
Female Cleaners	39
Laborers	18
Watchmen	4

Working force employed at the public bath, Elton avenue, during the year 1910, comparison of months of January and December:

January.	
Stationary Engineers	2
Fireman	1
Stokers	2
Male Laborer	1
Male Attendants	3
Female Attendants	2
Female Cleaners	2

December.	
Stationary Engineers	2
Firemen	3
Male Laborers	3
Male Attendants	2
Female Attendants	2
Female Cleaners	2

Working force employed at the floating bath from July 23 to October 1, 1910:

Male Attendant	1
Watchmen	3
Laborer	1
Female Attendants	2

Amounts expended for salaries by the Bureau of Public Buildings and Offices for the year 1910:

	Appropriation.	Amount Expended.	Balance.
Administration	$9,397 16	$8,272 13	$1,125 03
Mechanical Force	10,831 00	7,584 38	3,246 62
Labor Force	45,143 84	37,531 34	7,612 50
Interior Public Bath, Elton Avenue and 156th Street.			
Mechanical Force	$6,552 00	$6,528 00	$24 00
Labor Force	11,284 00	7,117 50	4,166 50

Floating Bath, 131*st Street and East River.*

Amount spent for salaries from the issue of special revenue bonds for floating bath:

Amount allowed, $2,000. Expended for salaries, $1,153.

Amounts expended for supplies, etc., by the Bureau of Public Buildings and Offices during the year 1910:

	Appropriation.	Expended.	Balance.
General Supplies	$4,967 25	$4,884 52	$82 73
Repairs and Replacements by Contract or Open Orders	2,534 10	2,531 28	2 82
Apparatus, Machinery, Vehicles, Harness, etc.	25 00	14 20	10 80
Purchase of Furniture and Fittings	1,575 00	1,557 92	17 08
Fuel	3,645 00	3,595 00	50 00
Telephone service	1,800 00	1,726 21	43 79
Contingencies	550 00	549 60	40

Amounts expended for use of the interior public bath, Elton avenue and 156th street, for supplies, etc., during the year 1910:

	Appropriation.	Expended.	Balance.
Contingencies	$300 00	$241 40	$58 60
Fuel	2,200 00	1,701 03	498 97

Amounts expended for use of the floating bath, 131st street and East River, for supplies, etc., during the year 1910:

Appropriation—		
Special Revenue Bonds		$2,000 00
Expended—		
For supplies	$708 04	
For salaries and wages	1,153 00	
		1,861 04
Balance unexpended		$138 96

Amounts expended for salaries, showing comparisons between the years 1909 and 1910:

Bureau of Public Buildings and Offices.

	1909.	1910.
Expended for administration	$9,406 00	$8,272 13
Expended for mechanical force	11,907 50	7,584 38
Expended for labor force	40,989 62	37,531 34
	$62,303 12	$53,387 85

Amounts expended for salaries, showing comparisons between the years 1909 and 1910:

Public Bath, Elton Avenue and 156th Street.

	1909.	1910.
Expended for mechanical and laboring forces	$8,165 00	$13,645 00

The increase of the year 1910 over 1909 shown above is due to the fact that the bath was not opened until May 17, 1909.

The attendance at the public interior bath, Elton avenue and 156th street, has been as follows for the year 1910:

	Male. Department.	Female Department.
January	4,809	1,148
February	3,972	654
March	8,917	1,196
April	8,995	833
May	14,590	3,081
June	24,168	11,657
July	50,054	21,951
August	36,133	19,338
September	27,413	11,322
October	30,206	11,052
November	24,907	4,080
December	22,393	3,567
Total	256,557	89,879

The free floating bath, located at 131st street and East River, was opened on July 28, and closed on October 1, 1910. The attendance was as follows:

	Males.	Females.
July 28 to 31 (both inclusive)	6,428	2,137
August	28,941	15,173
September	11,075	8,293
Total	46,444	25,603

CHIEF ENGINEER'S OFFICE.

March 22, 1911.

Mr. THOMAS W. WHITTLE, *Commissioner of Public Works:*

Dear Sir—In accordance with the usual custom, I beg to submit herewith a detailed report of the business transacted in my office, and also a report of the work performed in each of the various Bureaus and Divisions thereof, coming under my jurisdiction, for the year ending December 31, 1910.

Respectfully R. H. GILLESPIE, Chief Engineer of Sewers and Highways.

OFFICE OF CHIEF ENGINEER OF SEWERS AND HIGHWAYS.

Report for Year Ending December 31, 1910.

Reports on resolutions to President	127
Communications and general reports to Commissioner of Public Works	1,372
Communications to Engineer of Highways	768
Communications to Engineer of Sewers	352
Communications to Topographical Engineer	531
Communications to Engineer of Design	14
Communications to General Bookkeeper	83
Communications, miscellaneous	1,458
Payments forwarded	357
	5,062

R. H. GILLESPIE, Chief Engineer of Sewers and Highways.

BUREAU OF DESIGN.

February 1, 1911.

Mr. R. H. GILLESPIE, *Chief Engineer of Sewers and Highways:*

Dear Sir—I submit herewith a report of the operations of the Bureau of Design for the period of nine months ending December 31, 1910.

As a result of the reorganization of the engineering force of the office of the President of the Borough of The Bronx in April, 1910, the Bureau of Design was established as a branch of the service co-ordinate with the Topographical Bureau and the Construction Bureaus of Sewers and Highways. Its functions are to investigate and report on proposed public improvements, to prepare plans, estimates, contracts and specifications for all construction work, to prepare assessment maps and lists, to keep records of work done, to investigate and report on matters relating to design and construction which come to the President's office from foreign sources, to prepare drainage plans, and to prepare and maintain an accurate record of subsurface structures in the Borough.

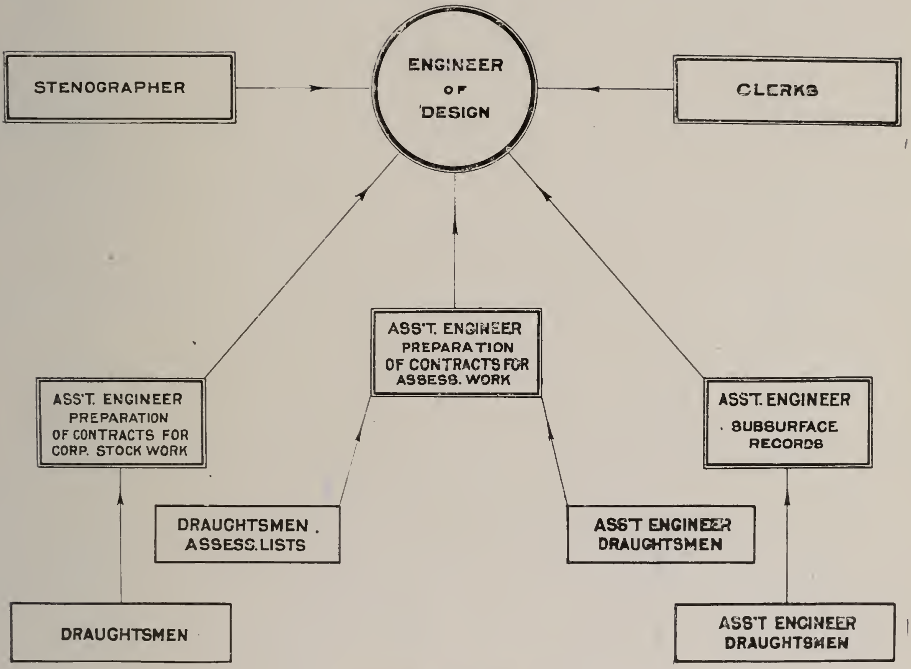
The operations in the several Divisions of the Bureau are described below.

Assessable Improvements.

Improvements, the cost of which is to be assessed on the property benefited, are initiated by petition of property owners to the Borough President. Upon the receipt of such petition a preliminary estimate of the cost of the improvement is made. This involves, in the case of a highway improvement, a survey, plotting of sections and estimate of cost by the Bureau of Highways and the design of any special work which may be involved and the determination of the assessed valuation of the property to be benefited, by the Bureau of Design. In the case of a sewer improvement, a survey including the necessary soundings and borings to determine subsurface conditions, and an estimate of cost are made by the Bureau of Sewers, and a preliminary plan and an approximate estimate, together with the determination of the assessed valuation and the frontage of the property to be benefited, either directly or indirectly, are made by the Bureau of Design.

The results of these operations are reported to the Local Board having jurisdiction, which may, after a public hearing, determine the necessity or propriety of the improvement. The matter is then referred to the Board of Estimate and Apportionment, which authorizes the President to proceed with the preparation of plans and contracts. The Bureau of Design then proceeds with the work in accordance with this preliminary authorization, which, when completed, is so reported to the Board of Estimate and Apportionment, which Board authorizes the improvement. After this final authorization, the contract is let and the work placed in charge of the appropriate Construction Bureau for execution. During the execution of the contract, the only work of the

ORGANIZATION.


ENGINEER OF DESIGN
STENOGRAPHER
CLERKS
ASS'T. ENGINEER PREPARATION OF CONTRACTS FOR ASSESS. WORK
ASS'T. ENGINEER PREPARATION OF CONTRACTS FOR CORP. STOCK WORK
ASS'T. ENGINEER SUBSURFACE RECORDS
DRAUGHTSMEN ASSESS. LISTS
ASS'T ENGINEER DRAUGHTSMEN
DRAUGHTSMEN
ASS'T ENGINEER DRAUGHTSMEN

BUREAU OF DESIGN

Bureau of Design is to furnish additional details as required, and to redesign or modify the plans if unusual or unexpected developments necessitate such changes.

Upon the completion of the construction, this Bureau is called upon to prepare the assessment maps and lists for the information of the Board of Assessors in apportioning the assessment to cover the cost of the improvement.

Corporate Stock Improvements.

Improvements, the benefits of which are not limited to the adjacent property, but which may be considered as affecting the City at large, are paid for by the Municipality out of the proceeds of the sale of corporate stock. The procedure with such improvements is slightly different from that outlined above. After the preliminary surveys, soundings and borings are made by the Construction Bureau, the preliminary studies, designs and estimates are made by this Bureau and the Board of Estimate and Apportionment is requested to authorize the sale of corporate stock in an amount sufficient to cover the cost of the improvement. After the concurrence in such a resolution by the Board of Aldermen, the plans, specifications and estimates are prepared, and submitted to the Board of Estimate and Apportionment for approval, upon the receipt of which the contract is let and the work executed by the proper Construction Bureau.

Impatience is sometimes shown by persons interested in various improvements, at what seems to them to be delay in the letting of contracts, and the various stages through which the work must pass are enumerated in some detail above in order to make it clear that a considerable time must necessarily elapse between the petition and the execution of the work.

Drainage Plans.

The preparation of drainage plans involves the necessary surveys, studies and designs of sewerage systems, sizes and gradient of sewers, etc., for various parts of the Borough. While this work is to be included in the Bureau of Design, for reasons of expediency, it has not yet been taken over and is still conducted under the direction of the Engineer of Sewers.

Subsurface Records.

This Division of the Bureau was organized in July, 1910, and its purpose is to gather together and record all available data relating to sewers, gas mains, water mains, subways, conduits for telephone, telegraph and electric light and power lines and other subsurface structures. Heretofore the records of location, size and character of these structures have, for the most part, been poorly kept, and such information as is recorded is widely scattered in the various offices. The records of sewers have been carefully kept by the Bureau of Sewers. Some information relating to water mains is obtainable in the Department of Water Supply, Gas and Electricity, but as a rule that information is general in character, and is not recorded with sufficient accuracy and detail for the work in hand. Comparatively little accurate information is available in connection with gas mains, conduits for telephone, telegraph, electric light and power lines, etc., and such records as exist are in the various offices of the companies owning them.

The importance of gathering together all this information, checking, correcting and amplifying it wherever possible by surveys and measurements in the streets, and accurately recording it on maps, can hardly be overestimated. When the location, size and character of existing subsurface structures are determined, new work may be properly located with reference to existing conditions; street openings for new work and for connections with old work, and the consequent damage to pavements may be reduced to a minimum; corporations and contractors doing work in the streets will have at their disposal, accurate information regarding the conditions which they may expect to find, and the City authorities, with a full knowledge of existing conditions, will be able to direct the location and construction of new work to the best advantage.

It is hoped that in the near future, when the preparation of the records is sufficiently advanced, steps will be taken to authorize the Borough President to sell the information to interested parties. For a comparatively small fee, the Bureau could furnish to public service corporations data which they now are compelled to obtain for themselves at far greater expenditure of time and money, and with considerable less accuracy. This policy has been in operation in the City of Philadelphia for about thirteen years, with the result that in each year of that period, except three, the receipts in fees more than covered the cost of operation of the Division. When the value of the additions to the records during those years is taken into consideration, though that value cannot be reckoned in dollars, it is readily seen that that office is being operated at a large profit to the City of Philadelphia. It is believed that such a policy could be put into operation in the Borough of The Bronx, and that the public service corporations would welcome the opportunity to avail themselves of the records.

Before the organization of this Division visits were made to the Bureau of Surveys in Philadelphia and the Division of Substructures in the Borough of Brooklyn, for the purpose of studying the methods there in use. The methods finally adopted here are similar to those in use in Brooklyn.

The field work consists of locating pipes, conduits, etc., as opportunities offer. Street openings of whatever character are examined and all exposed structures carefully located, this data being plotted on maps in progress or filed for future plotting. The records of the Empire City Subway Company, the Consolidated Telegraph and Electrical Subway Company, the Department of Water Supply, Gas and Electricity and the various gas companies owning mains in the Borough have been searched and the available information copied and recorded on the maps in progress or filed until the sheets on which it is located shall be in work.

The results of these surveys and investigations are accurately plotted to a scale of 20 feet to the inch, on cloth-mounted, white paper in sheets 27 inches by 40 inches, and colored, all structures of similar character being noted in the same color. The horizontal location of any structure can then, with reasonable accuracy, be determined by scaling, and its dimensions and depth below the street surface are noted by figures on the map. It is also intended, wherever possible, to show the depth of the rock formation below the street surfaces. Each sheet includes an area of about 9 acres, and at the present time one sheet is practically complete to date, and nine sheets are in progress, about half completed.

General.

In addition to the above, a certain amount of general work comes into the Bureau from foreign sources. Improvements or alterations proposed by other Departments or private corporations or individuals, which affect the interests under the jurisdiction of the President of the Borough, are investigated and reported upon by the Bureau.

All of the work heretofore referred to, except that in connection with the subsurface records, was formerly done by the Bureaus of Sewers and Highways, and it was expected that the performance of all of the work under one jurisdiction would result in standardization, uniformity and economy. With these objects in mind an effort has been made to eliminate as far as possible the duplication of work, to standardize the size and appearance of the plans and to give the required information thereon in clear but concise form. A press has been installed for printing titles on plans, with the result that much time has been saved, and the titles are well executed and uniform in appearance. There is also in preparation a series of drawings of standard details of construction. These are being made with a view to standardizing the details and at the same time avoiding their constant repetition on the plans. A considerable amount of work has also been done in connection with the revising of specifications for the various kinds of work. The use of the standards of construction and the revised specifications will result in a material saving of time and labor, and the reduction of the chances of error.

A new method has been devised, though not yet in actual operation, of keeping records of completed contracts. As soon as a contract is executed, lithograph prints of the contract plans will be made on linen-mounted paper and placed in the hands of the Engineer in charge of construction. As the work progresses he will note thereon a complete record of the construction, together with the names of contractor, Inspectors, etc., dates of execution and completion of work, total amounts and cost of work, and all other information necessary to make a complete record of the work done under the contract. Upon completion of the contract, this record map is to be returned to this Bureau for filing and future reference. The advantages of this method are that the record is made at the time the work is executed, by the man in actual charge; there is no extra cost, because it can be made during spare time, and the record is completed as soon as the work is completed.

In judging whether or not good results have been obtained from the new organization, it must be remembered that a change as radical as this can only be brought about gradually. Methods which have been in vogue for many years cannot be changed in a day. The Bureau has been in operation only nine months, a large part of which must be considered as a period of transition during which the work has not been prosecuted as effectively as it will be in the future with the new organization and methods more nearly perfected.

With a view to getting some basis of comparison, the work of the Bureau for the period of nine months, from April to December, 1910, inclusive, is below compared with as much accuracy as is practicable, with the work, similar in character, of the Bureaus of Sewers and Highways for the corresponding period of 1909.

	Sewers, 1909.	Highways, 1909.	Total, 1909.	Design, 1910.
Approximate assessed valuations forwarded.........	12	63	75	108
Contract Plans and Specifications Prepared—				
Number of contracts......	18	86	104	112
Number of specifications..	213	656	869	1,233
Number of bid sheets.....	550	984	1,534	1,940
Preliminary field books......	5	35	40	100
Construction field books.....	25	35	60	91
Assessment Lists—				
Number of contracts......	34	29	63	55
Number of lots...........	3,904	2,926	6,830	4,823
Record maps completed.....	16	32	48	....
Estimated cost of work prepared for letting.........	*$1,181,559 00	$1,643,195 00	$2,824,754 00	$2,944,734 00
Actual cost of work for which assessment lists were prepared	632,768 00	780,844 00	1,413,612 00	2,780,950 00

*This amount includes the estimated cost ($896,891) of the White Plains Outlet Sewer, the plans for which were in progress during 1908.

Some miscellaneous work was done by the Bureaus of Sewers and Highways in 1909, for which no corresponding work was done in the Bureau of Design and vice versa, and it is assumed that these items will about offset each other.

The above comparison shows that more work was completed in this Bureau during the period of its existence than was completed in the separate Bureaus during the corresponding period of 1909, and an examination of the respective payrolls shows that the cost of the work done in 1910 was about two-thirds of the cost of the corresponding work of the preceding year.

A summary of the work done in connection with the preparation of contracts for assessment work follows:

Tracings show layout and grades prepared and submitted to the Topographical Bureau for approval..	162
Field books for preliminary surveys prepared..................................	100
Profiles for use in making necessary soundings and borings..................	47
Preliminary working drawings prepared (sheets)............................	158
Data for report to Local Board forwarded on contracts......................	108

Contract Plans and Specifications Prepared.

	For Letting.	For Reletting.	Total.
Number of contracts..	108	4	112
Number of tracings (sheets)................................	221	15	236
Number of specifications....................................	1,184	49	1,233
Number of bid sheets..	1,871	69	1,940
Contracts forwarded..	76	4	80

Construction field books prepared..	91
Inspectors' books prepared..	46
Black prints for record maps forwarded.......................................	39
Progress profiles for Construction Bureau....................................	11
Number of working drawings of standard details prepared..................	25

Assessment Lists.

	Prepared	Revised and Amended.	Total.
Number of contracts forwarded......................	52	3	55
Number of maps prepared in duplicate................	101	27	128
Frontage represented (linear feet)....................	343,970	117,184	461,154
Number of lots.............................	3,835	988	4,823

Communications and reports forwarded	493
Total Estimated Cost (not including Engineering and Inspection) of—	
Contracts prepared and forwarded for letting	$1,823,306 00
Contracts prepared but not forwarded for letting	431,053 00
Contracts prepared and forwarded for reletting	690,375 00
Total	$2,944,734 00
Total Cost of Contracts (including Engineering and Inspection) for which Assessment Lists were—	
Prepared and forwarded	$2,419,666 00
Amended, revised and forwarded	361,284 00
Total	$2,780,950 00

Details of the above work will be found in Tables I., II., III., IV., V. and VI., hereto annexed.

Of the improvements, for which the sale of corporate stock has been authorized, none have been let during the year, but several are in course of preparation.

The widening of Pelham avenue over the tracks of the New York and Harlem Railroad, involving the removal of the railroad station to the north side of Pelham avenue; the creation of a plaza covering the tracks and extending from Pelham avenue to the south side of Welch street, together with the necessary changes of the grades of the adjoining streets, is an improvement of magnificent proportions. The plans for this work are advanced as far as they may be until an agreement, as provided by the legislative act authorizing the work, is made between the City and the Railroad Company relative to the removal of the station.

The plans for the transverse road at East 170th street, in connection with the Grand Boulevard and Concourse, are nearing completion, and the contract for this work will be ready for letting in the very near future.

Plans for the transverse road, at East 200th street, have been started, and it is expected that this contract will also be let early in the Spring. Both of these transverse roads will be similar in general design to those already built at East 167th street, Tremont avenue, Burnside avenue, Kingsbridge road and East 204th street.

The transverse road at East 174th street, owing to the greater difference of elevation of the two streets, will be entirely different in character. The Concourse, for its full width, will be carried over 174th street by means of an arch. There is an opportunity here to build a structure which will serve an ornamental as well as a utilitarian purpose. Comparatively little attention has heretofore been paid in this Borough to the ornamentation of public structures other than buildings, but the steady growth of culture, refinement and civic pride now permits of efforts in that direction, which formerly would have been looked upon as extravagance. With this in mind, the services of an architect have been secured for the purpose suggesting a decorative treatment of the arch at 174th street, and it is hoped to make this structure one of lasting beauty. Preliminary sketches have been made and are about to be submitted to the Municipal Art Commission for approval. As soon as this approval is obtained the plans will be completed, so that work may be started during the Spring.

The improvement of Gun Hill road, from Webster avenue to White Plains road, has been authorized. This involves the widening of the streeet to 100 feet, the raising of the grades at several points to reduce the gradients, and the reconstruction of the bridges over the New York and Harlem Railroad and the Bronx River. Plans for this work have been started and will be advanced as rapidly as possible.

A small improvement has been authorized at the intersection of Franklin and 3d avenues, and a contract for this work will be prepared in the near future.

A summary of the work of the Division of Subsurface Records follows:

Description.	Number		Linear Feet Measured.
	Located.	Measured.	
Transit points	126	....	....
Angles	....	752	....
Transit and offset lines	....	....	89,700
Sewers	....	....	....
Sewer manholes	338	....	....
Receiving basins	68	....	....
Water mains	....	....	....
Water gate boxes	157	....	....
Hydrants	138	....	....

Description.	Number		Linear Feet
	Located.	Measured.	Measured.
Gas drips	84	....	....
Poles	32	....	....
Elevated columns	189	....	....
E. C. Sub. Co. (boxes)	43	....	....
Cons. T. & E. S. Co. (boxes)	26	....	....
New York Fire Department	5	....	....
Street and curb lines	....	....	....
Trolley tracks	....	....	....
Railroad tracks	....	....	....
Retaining walls	19	....	....
Column foundations	....	20	....

Investigation of Open Cuts.

Water mains, located	595
Gas mains, located	945
Duct mains, located	148
Vaults, located	4
Special sections (gas), located	8

Examinations.	Number.
Sewer manholes	290
Water boxes	116
Receiving basins	50

In addition to the work enumerated above the general work of the office included the following:

Reports to Chief Engineer	45
Other communications to Chief Engineer	81
Communications to Topographical Engineer	52
Miscellaneous communications	92
	270

In conclusion I beg to state that while the above report indicates that the Bureau of Design is operating with some measure of success and is justifying its organization, there appears to be no reason why it should not operate with increased efficiency during the coming year, and I desire to gratefully acknowledge the able and faithful co-operation of the employees of the Bureau in attaining that result.

Respectfully, CHAS. GARTENSTEIG, Engineer of Design.

Table I.—Estimate of Quantities and Data for Report to Local Board Forwarded.

Sewers and Appurtenances.

Westchester Avenue—Between Zerega avenue and Westchester square, and in Westchester square, between Westchester avenue and Walker avenue.

West 236th Street—Between Broadway and Kingsbridge avenue, and in West 238th street, between Broadway and Kingsbridge avenue, and in Kingsbridge avenue, between West 234th street and West 238th street.

Mianna Street (temporary)—Between White Plains avenue and Unionport road.

Drainage Street—South of Boscobel place, between Undercliff avenue and Aqueduct avenue; in Aqueduct avenue, between West 170th street and Ogden avenue; in Ogden avenue, between West 169th street and Aqueduct avenue; in Lind avenue, between West 170th street and summit southerly therefrom; in Aqueduct avenue (east side), between Boscobel avenue and Featherbed lane; in Undercliff avenue, from existing sewer south of Boscobel place to Boscobel place, and in Boscobel place, between Undercliff avenue and Aqueduct avenue.

Hoe Avenue—Between Whitlock avenue and a point about 445 feet 6 inches south of Aldus street.

East 177th Street—Between Pugsley avenue and Theriot avenue, and in Leland avenue, between East 177th street and Westchester avenue; in Theriot avenue, between East 177th street and Westchester avenue; in Westchester avenue, between Pugsley avenue and Theriot avenue, and in the Plaza, at the intersection of East 177th street and Westchester avenue.

White Plains Road—Between East 177th street and Wood avenue, and in Wood avenue, between White Plains road and Beach avenue, and in Leland avenue, between East 177th street and Wood avenue, and in Beach avenue, between McGraw avenue and Archer street, and in Theriot avenue, between East 177th street and Wood avenue, and in East 177th street, between Theriot avenue and Rosedale avenue, and in Taylor avenue, between East 177th street and Wood avenue.

Glebe Avenue—Between Parker street and Lyon avenue, and in Starling avenue, between Glebe avenue and Castle Hill avenue.

East 236th Street—Between Katonah avenue and Martha avenue.

East 161st Street—Between Jerome avenue and River avenue.

Lyon Avenue—Between Castle Hill avenue and Zerega avenue; in Glebe avenue, between Lyon avenue and Westchester avenue, and in Doris avenue, between Lyon avenue and the summit south of Lyon avenue.

Corlear Avenue—Between West 230th street and West 232d street, and in West 231st street, between Corlear avenue and Kingsbridge avenue.

Corlear Avenue—Between West 230th street and West 231st street, and in West 231st street, between Corlear avenue to Kingsbridge avenue.

Cruger Avenue—Between a point about 128 feet north of Bartholdi street to a point about 225 feet north of Bartholdi street.

East 180th Street—Between Anthony avenue and Grand Boulevard and Concourse.

Walton Avenue—Between East 167th street and East 168th street.

West 231st Street—Between Broadway and Kingsbridge avenue, and in Kingsbridge avenue, between West 230th street and West 232d street.

Gun Hill Road—Between Olinville avenue and Perry avenue, and in Webster avenue, between Gun Hill road and East 211th street, and in Decatur avenue, between Gun Hill road and the summit 300 feet southerly therefrom, and in Hull avenue, between Gun Hill road and the summit 200 feet southerly therefrom, and in Webster avenue (east side), between Gun Hill road and East 210th street, and in Webster avenue, from the east side to the west side, at East 210th street, and in Webster avenue (west side), between East 210th street and Gun Hill road, and in Parkside place between East 210th street and the summit 200 feet north of East 207th street.

Glebe Avenue—Between Parker street and Rowland street, and in Zerega avenue, between Glebe avenue and St. Raymond avenue.

St. Raymond Avenue—Between Parker avenue and Glover street, and in Glover street, between St. Raymond avenue and Castle Hill avenue.

Concord Avenue—Between 147th street and East 149th street.

Simpson Street—Between East 167th street to a point about 251 feet southerly therefrom.

Seneca Avenue—Between Whittier street and the easterly side of Edgewater road.

Brown Place—Between 132d street and Southern boulevard.

Spuyten Duyvil Parkway—North side, between West 244th street and Riverdale avenue, and across Spuyten Duyvil parkway at Avenue Von Humboldt.

Riverdale Avenue—Between West 259th street and the summit south of West 259th street.

Receiving Basins and Appurtenances.

Morris Park Avenue—And Wallace avenue, southeast corner; and Cruger avenue, northeast and southeast corners; and Amethyst avenue, northwest corner; and Fillmore street, southeast corner.

Crotona Park East—Opposite East 173d street, west side.

West 181st Street—And Aqueduct Avenue East, northwest corner.

Aqueduct Avenue—And Fordham road, southeast corner.

East 204th Street—North side, at the approach to the Concourse, at Valentine avenue.

Sedgwick Avenue—And West 177th street, northeast corner; and West 177th street, southeast corner; and Undercliff avenue, southwest corner.

Inwood Avenue—And Macombs road, northwest corner; Inwood avenue and West 172d street, northeast corner.

Tiffany Street—And Randall avenue, northwest corner.

Gouverneur Place—Northeast corner, and Park Avenue East.

East 184th Street—And Ryer avenue, southeast and southwest corners.

TABLE II.—APPROXIMATE ASSESSED VALUATIONS FORWARDED FOR REPORT TO LOCAL BOARD.

Regulating, Grading, etc.

Tratman Avenue—From Zerega avenue to Benson avenue (Madison avenue).

West 238th Street—From Sedgwick avenue to Fort Independence street.

East 222d Street—From Bronxwood avenue to Adee avenue.

Dorsey Street—From Zerega avenue to Seddon street.

Findlay Avenue—From East 164th street to East 165th street.
East 222d Street—From Bronxwood avenue to Hutchinson River.
Freeman Street—From Stebbins avenue to Intervale avenue.
Cromwell Avenue—From Jerome avenue to Macombs road.
East 184th Street—From Grand Boulevard and Concourse to Valentine avenue.
Brown Place—From East 132d street to East 133d street.
East 162d Street—From Grand Boulevard and Concourse to Sheridan avenue.
Seneca Avenue—From Hunts Point avenue to Whittier street.
Park Avenue West—From East 189th street to Pelham avenue.
Park Avenue East—From East 189th street to Pelham avenue.
Third Avenue—From East 189th street to Pelham avenue.
Welch Street—From Park Avenue West to Webster avenue.
One Hundred and Eighty-ninth Street—From Third avenue to a point 225 feet easterly therefrom.
Zerega Avenue—From Westchester avenue to Castlehill avenue.
Trafalgar Place—From East 175th street to East 176th street.
Van Nest Avenue—From West Farms road to Bear Swamp road.
Bronx Boulevard—From Gun Hill road to Morris street (Burke avenue).
White Plains Avenue—From Morris Park avenue to Walker avenue.
Unnamed Street—Connecting Tiebout avenue at the intersection of 181st street with Webster avenue, at the intersection of 182d street.
Van Cortlandt Avenue—From Mosholu Parkway South to Jerome avenue.
Barretto Street—From Lafayette avenue to Spofford avenue.
Van Cortlandt Avenue—From Sedgwick avenue to Albany road.
Bronx Park Avenue—From Tremont avenue to Walker avenue.
Westchester Avenue—From Main street to Eastern boulevard.
Holland Avenue—From Briggs avenue (Gun Hill road) to East 215th street.
East 161st Street—From Walton avenue to Jerome avenue.
West 254th Street—From Broadway to Fieldston road.
Aqueduct Avenue East—From West 180th street to West 184th street.
Sheridan Avenue—From East 169th street to Belmont street.
Paulding Avenue—From 222d street to 233d street.
Plympton Avenue—From Boscobel avenue to Featherbed lane

Paving with Bituminous Macadam.

City Island Avenue—From the approach to the City Island Bridge to Long Island Sound.
Walton Avenue—From Fordham road to Burnside avenue.
Loring Place—From University avenue to West 183d street.
Perry Avenue—From Bedford Park boulevard to Mosholu Parkway South.
Grand Avenue—From Tremont avenue to Burnside avenue.
Aqueduct Avenue—From 181st street to Fordham road.
Clason Point Road—From Westchester avenue to bulkhead line.
East 236th Street—From Mount Vernon avenue to Webster avenue.
East 188th Street—From Third avenue to Beaumont avenue.

Paving with Asphalt Blocks.

Tinton Avenue—From Southern boulevard to 149th street.
East 178th Street—From east side of 3d avenue to west side of Hughes avenue.
Quarry Road—From Third avenue to Arthur avenue.
Webb Avenue—From 188th street to Kingsbridge road.
Fort Independence Street—From Sedgwick avenue to West 238th street, and West 238th street, from Fort Independence street to Broadway.
Grant Avenue—From 165th street to 166th street.
Eastburn Avenue—From 174th street to 175th street.
East 175th Street—From 3d avenue to Park avenue.
Walton Avenue—From Fordham road to 184th street.
Bryant Avenue—From Seneca avenue to Garrison avenue.
Kelly Street—From Westchester avenue to Intervale avenue.
East 166th Street—From Webster avenue to Morris avenue
Teller Avenue—From 164th street to 167th street.
East 188th Street—From 3d avenue to Park avenue.
East 178th Street—From Burnside avenue to Park avenue.
East 172d Street—From Seabury place to Southern boulevard.
East 193d Street—From Grand Boulevard and Concourse to Jerome avenue.
Morris Avenue—From East 193d street to Kingsbridge road.

Paving with Sheet Asphalt.

Prospect Avenue—From East 149th street to Crotona Park East.

Fox Street—From 163d street (Dongan street) to Barretto street, and Simpson street, from 163d street (Dongan street) to Barretto street, and Barretto street, from Fox street to Southern boulevard.

Fox Street—From Intervale avenue to Barretto street.

Bassford Avenue—From East 182d street to 3d avenue.

Paving with Granite Blocks.

Exterior Street—From East 149th street to East 151st street.

Asphalt Block, Sheet Asphalt and Granite Blocks.

East 182d Street—From Park avenue to 3d avenue.

East 160th Street—From Cauldwell avenue to Forest avenue.

East 181st Street—From Park avenue to Boston road.

Granite Blocks and Asphalt Blocks.

Teasdale Place—From Boston road to Trinity avenue.

Wood Blocks.

East 158th Street—From Cauldwell avenue to Eagle avenue.

Regulating, Grading and Steps.

East 187th Street—From Valentine avenue to Marion avenue.

Miscellaneous.

East 164th Street—Guard rail, beginning 31 feet from the easterly house line of Washington avenue for about 150 feet.

East 135th Street—466 and 474, fencing vacant lots to a sufficient height to prevent trespassing.

Prospect Avenue—From 149th street to Crotona Park East. Furnishing and placing sod, furnishing and placing iron railing for centre plots along.

TABLE III.—CONTRACT PLANS AND SPECIFCATIONS PREPARED BUT NOT FORWARDED FOR LETTING.

Sewers and Appurtenances.

West 231st Street—Between Broadway and Kingsbridge avenue, and in Kingsbridge avenue, between West 230th street and West 232d street.

West 234th Street—Between Broadway and Kingsbridge avenue, and in Kingsbridge avenue, between West 234th street and West 232d street.

Concord Avenue—Between 147th street and 149th street.

East 180th Street—Between Anthony avenue and the Grand Boulevard and Concourse.

Walton Avenue—Between East 168th street and East 167th street.

Cruger Avenue (temporary)—From a point 128 feet north of Bartholdi street to a point 225 feet north of Bartholdi street.

Receiving Basins and Appurtenances.

East 204th Street—North side, at the approach to the Grand Boulevard and Concourse, at Valentine avenue.

Randall Avenue—And Tiffany street, northwest corner.

Inwood Avenue—And Macombs road, northwest corner; and West 172d street, northeast corner.

Regulating, Grading, etc.

Ludlow Avenue—From White Plains road to Tremont avenue.

Kingsbridge Road—From Bailey avenue to the boundary line between the Borough of The Bronx and the Borough of Manhattan, City of New York, excepting the space between the tracks of the New York and Putnam Railroad.

East 184th Street—From the Grand Boulevard and Concourse to Valentine avenue.

East 192d Street—From Creston avenue to Kingsbridge road.

Bronxwood Avenue—From Gun Hill road to Burke avenue.

Findlay Avenue—From East 164th street to East 165th street.

Seneca Avenue—From Hunts Point avenue to Whittier street.

Trafalgar Place—From 175th street to East 176th street.

Unnamed Street—Connecting Tiebout avenue, at the intersection of East 181st street, with Webster avenue, at the intersection of East 182d street.

Triangle lying between Lafontaine avenue and Quarry road, north of the south line of Oak Tree place.

Ryer Avenue—From East 183d street to West 184th street.

Paving with Bituminous Macadam.

City Island Avenue—From the Approach to City Island Bridge to Long Island Sound.

Paving with Asphalt Blocks.

Longfellow Avenue—From Freeman street to East 172d street.
Grant Avenue—From 165th street to 166th street.
Eastburn Avenue—From 174th street to 175th street.
Bryant Avenue—From Westchester avenue to East 172d street.
Bryant Avenue—From Seneca avenue to Garrison avenue.
Kelly Street—From Westchester avenue northerly to Intervale avenue.
West 188th Street—From Aqueduct avenue to Sedgwick avenue.
East 179th Street—From 3d avenue to Bronx street.

Paving with Sheet Asphalt.

Park Avenue West—From Morris avenue, near 156th street and 162d street.
Fox Street—From Intervale avenue to Barretto street.

East 171st Street—From Webster avenue to the New York and Harlem Railroad Company.

TABLE IV.—CONTRACTS FORWARDED FOR LETTING.

Sewers and Appurtenances.

East 174th Street—Between Boston road and West Farms road, and in Hoe avenue, between East 173d street and East 174th street.

Ryer Avenue—Between Burnside avenue and East 178th street, and in East 178th street, between Ryer avenue and Anthony avenue.

Drainage Street—South of Boscobel place, between Undercliff avenue and Aqueduct avenue; in Aqueduct avenue, between West 170th street and Ogden avenue; in Ogden avenue, between West 169th street and Aqueduct avenue; in Lind avenue, between West 170th street and summit southerly therefrom; in Aqueduct avenue (east side), between Boscobel avenue and Featherbed lane; in Undercliff avenue, from existing sewer south of Boscobel place to Boscobel place, and in Boscobel place, between Undercliff avenue and Aqueduct avenue.

Hoe Avenue—Between Boston road and East 174th street; in Vyse avenue, between Boston road and East 173d street; in Bryant avenue, between East 176th street and East 173d street; in Longfellow avenue, between East 176th street and East 173d street; in Boone avenue, between East 176th street and the summit south of East 172d street; in East 173d street, between West Farms road and Longfellow avenue; in East 172d street, between West Farms road and Longfellow avenue.

West 242d Street—Between Broadway and Waldo avenue; Waldo avenue, between West 242d street and West 244th street; in West 244th street, between Waldo avenue and Spuyten Duyvil parkway; in Spuyten Duyvil parkway, between West 244th street and Riverdale avenue.

Westchester Avenue—Between Zerega avenue and Castlehill avenue, and in Glover street, between Westchester avenue and Lyon avenue, and in Doris street, between Westchester avenue and summit north of Westchester avenue, and in Ludlow avenue, between Pugsley avenue and Zerega avenue, and in Castlehill avenue, between Ludlow avenue and Blackrock avenue, and in East 177th street, between Ludlow avenue and Havemeyer avenue, and in Westchester avenue, between Pugsley avenue and in Olmstead avenue.

Seneca Avenue—Between Whittier street and the easterly side of Edgewater road.

Westchester Avenue—Between Zerega avenue and Westchester Square; Westchester Square, between Westchester avenue and Walker avenue.

East 236th Street—Between Katonah avenue and Martha avenue.

Simpson Street—Between East 167th street and a point about 251 feet southerly therefrom.

Walker Avenue—Between Westchester Square and Overing street, and in
Benson Avenue—Between Westchester Square and Walker avenue, and in
Overing Street—Between Westchester avenue and Walker avenue, and in
St. Peters Avenue—Between Westchester avenue and Walker avenue, and in
Rowland Street—Between Westchester avenue and St. Raymond avenue, and in

Zerega Avenue—Between Westchester avenue and Glebe avenue, and in
Tratman Avenue—Between Zerega avenue and Benson avenue, and in
Frisby Avenue—Between Zerega avenue and Walker avenue, and in
Glebe Avenue—Between Rowland street and Overing street, and in
Maclay Avenue—Between St. Peters avenue and Benson avenue.

Receiving Basins and Appurtenances.

Morris Park Avenue—And Wallace avenue, southeast corner; and Cruger avenue, northeast and southeast corners; and Amethyst street, northwest corner; and Fillmore street, southeast corner.

Crotona Park East—Opposite East 173d street (west side).

West 181st Street—And Aqueduct Avenue East, northwest corner.

Aqueduct Avenue—And Fordham road, southeast corner.

East 174th Street—And Eastburn avenue, northeast and southeast corners.

Regulating, Grading, etc.

Lyon Avenue—From Zerega avenue to Castlehill avenue.

Whitlock Avenue—From Leggett avenue to Longwood avenue.

Fox Street—From 156th street to Longwood avenue.

Wyatt Street—From Devoe or Tremont avenue to Morris Park avenue.

Faile Street—From Seneca avenue to Lafayette avenue.

Wayne Avenue—From Reservoir Oval to Gun Hill road.

Jerome Avenue—From 190th street to a grade point about 600 feet north of Van Cortlandt avenue.

Powers Avenue—From 141st street to St. Marys street.

West 238th Street—From Sedgwick avenue to Cannon place.

Jerome Avenue—From Mosholu parkway to the northerly line of the City, and all work incidental thereto.

Albany Road—From Van Cortlandt Park South to Bailey avenue; Bailey avenue, from Albany road to Sedgwick avenue; Sedgwick avenue, from Bailey avenue to Fordham road.

Tratman Avenue—From Zerega avenue to Benson avenue (Madison avenue).

Mount Vernon Avenue—From East 233d street to the northerly boundary line of The City of New York.

Burke Avenue—From White Plains road to Bronx boulevard.

Boston Road—From White Plains road to the north line of the City.

Cromwell Avenue—From Jerome avenue to Macombs road.

West 176th Street—From Aqueduct avenue to Popham avenue.

Paving with Bituminous Macadam.

Loring Place—From University avenue to West 183d street.

Walton Avenue—From Fordham road to Burnside avenue.

Paving with Asphalt Blocks.

Longfellow Avenue—From Westchester avenue to Freeman street.

Vyse (Street) Avenue—From Home street to East 172d street.

Concord Avenue—From 149th street to 152d street.

Daly Avenue—From 176th street to 177th street.

Oakland Place—From Belmont avenue to Prospect avenue.

Boscobel Avenue—From Jerome avenue to Washington Bridge.

Villa Avenue—From Bedford Park boulevard (East 200th street) to Van Cortlandt avenue.

East 150th Street—From Robbins avenue to Prospect avenue.

East 135th Street—From east side of Southern boulevard to Locust avenue.

East 172d Street—From 3d avenue to Park avenue.

Wilkins Avenue—From Intervale avenue to Southern boulevard.

Grote Street—From East 182d street to Southern boulevard.

Simpson Street—From 167th street to change of grade south of the same.

Tinton Avenue—From 149th street to Fox street.

Ritter Place—From Union avenue to Prospect avenue.

East 178th Street—From 3d avenue to Hughes avenue.

Park Avenue West—From East 177th street to East 189th street.

Tinton Avenue—From Southern boulevard to 149th street.

Paving with Sheet Asphalt.

Wendover Avenue—From Washington avenue to Park avenue.

East 156th Street—From du[illegible]elly street to Dawson street.

East 167th Street—From Union avenue to Prospect avenue.
Avenue St. John—From Prospect avenue to Southern boulevard.
Beck Street—From Prospect avenue to Leggett avenue.
East 162d Street—From Morris avenue to Sherman avenue.
Kelly Street—From Prospect avenue to East 156th street.
Jerome Avenue—From Macombs Dam Bridge to East 162d street.

Repaving with Sheet Asphalt.

Arthur Avenue—From East 183d street to Pelham avenue.
East 135th Street—From Brook avenue to St. Anns avenue.
East 140th Street—From 3d avenue to Morris avenue.
East 141st Street—From 3d avenue to Rider avenue.
East 142d Street—From Morris avenue to Rider avenue.
East 160th Street—From Washington avenue to Elton avenue.

Repaving with Asphalt Blocks.

Brook Avenue—From Webster avenue to Wendover avenue.

Regulating Grading and Paving with Granite Blocks.

Canal Street West—From 135th street to 138th street.

Paving with Granite Blocks.

West 165th Street—From Anderson avenue to Lind avenue.
East 162d Street—From Prospect avenue to Stebbins avenue.
Tremont Avenue—From Jerome avenue to the approach to the Concourse.

Repaving with Granite Blocks.

Southern Boulevard—From Willis avenue to East 138th street.
Brook Avenue—From Westchester avenue to East 156th street.

Regulating, Grading and Repaving with Granite Blocks.

East 149th Street—From Mott avenue to Morris avenue.

Laying Cement Sidewalks.

Webster Avenue—From Mosholu Parkway South to Mosholu Parkway North.

President's Orders.

Fences.

Vacant Lots—Between 466 and 474 East 135th street.

Regulating and Flagging.

Hunts Point Avenue—From Southern boulevard to Lafayette avenue.

Table V.—Contract Plans and Specifications Prepared and Forwarded for Reletting.

Sewers and Appurtenances.

White Plains Road (outlet)—Between East River and East 152d street; in East 152d street, between White Plains road and Avenue B; in Avenue B, between East 152d street and Lafayette avenue (East 156th street), and in Lafayette avenue (East 156th street), between Avenue B and Avenue A.

Regulating, Grading, etc.

West Farms Road—From Morris Park avenue to the intersection of Westchester avenue and former Maine street.

Leggett Avenue—From Southern boulevard to Randall avenue.

Edenwald Avenue—From 233d street to the boundary line between The City of New York and the City of Mount Vernon.

Table VI—Assessment Lists Forwarded.

Regulating, Grading, etc.

Gates Place—From Mosholu Parkway North to Gun Hill road.
Briggs Avenue—From White Plains road to Baychester avenue.
Belmont Street—From Weeks avenue to Eden avenue.
East 185th Street—From Prospect avenue to Southern boulevard.
Seddon Street—From St. Raymond street to White Plains road.
Morris Park Avenue—From West Farms road to Bear Swamp road (revising maps per order of Board of Assessors).

East 210th Street—From DeKalb avenue to Wayne avenue

Rosewood Avenue—From White Plains road to Cruger street.

Garrison Avenue—From Whittier street to Edgewater road.

Cannon Place—From Giles place to West 238th street.

DeKalb Avenue—From 208th street to Gun Hill road.

Longfellow Avenue—From Lafayette avenue to New York, New Haven and Hartford Railroad.

Hawkstone Street—From Walton avenue to Concourse.

Belmont Street—From Webster avenue to Clay avenue.

Burnet Place—From Garrison avenue to Tiffany street.

Astor Avenue—From Bronx Park boulevard to White Plains road.

Gun Hill Road—From Jerome avenue to Mosholu parkway.

Valentine Avenue—From East 194th street to East 204th street (amending maps according to direction of Board of Assessors).

Grand Boulevard and Concourse—From East 161st street to Mosholu parkway.

Baychester Avenue—From White Plains road to Boston road.

Fox Street—From 156th street to Longwood avenue.

East 161st Street—From 3d avenue to Brook avenue.

Whitlock Avenue—From Leggett avenue to Longwood avenue.

Lyon Avenue—From Zerega avenue to Castlehill avenue.

Seneca Avenue—From Whittier street to 100 feet east of Edgewater road.

Clason Point Road—From Westchester avenue to the East River (revising lists per order of Board of Assessors).

Commonwealth Avenue—From West Farms road to Westchester avenue.)

Paving with Asphalt Blocks.

East 164th Street—From Prospect avenue to Stebbins avenue.

Grant Avenue—From East 161st street to East 162d street.

Elsmere Place—From Marmion avenue to Southern boulevard.

Anna Place—From Brook avenue to Webster avenue.

Hoe Avenue—From Freeman street to East 172d street.

Mosholu Parkkway South—From Webster avenue to Briggs avenue.

Fulton Avenue—From East 170th street to East 175th street.

Arthur Avenue—From East 175th street to Tremont avenue.

Daly Avenue—From East 176th street to East 177th street.

Edgewater Road—From Garrison avenue to Seneca avenue.

East 170th Street—From Wilkins avenue to Charlotte street.

East 159th Street—From Brook avenue to St. Anns avenue.

College Avenue—From East 165th street to East 166th street.

St. Pauls Place—From Webster avenue to Fulton avenue.

Concord Avenue—From 149th street to 152d street.

Oakland Place—From Belmont avenue to Prospect avenue.

Grote Street—From 182d street to Southern boulevard.

Paving with Asphalt Blocks and Granite Blocks.

Jennings Street—From Stebbins avenue to West Farms road.

Crotona Park East—From Crotona Park South to Southern boulevard.

Broadway—From Spuyten Duyvil Creek to City line.

East 176th Street—From Arthur avenue to Southern boulevard.

Paving with Sheet Asphalt.

Whitlock Avenue—From Longwood avenue to Tiffany street.

Beck Street—From Longwood avenue to Intervale avenue.

East 161st Street—From Prospect avenue to Union avenue.

Paving with Granite Blocks.

Longwood Avenue—From Southern boulevard to Tiffany street.

Paving with Slag.

Clay Avenue—From East 166th street to Wendover avenue.

PRESIDENT'S ORDERS.

Flagging, etc.

St. Anns Avenue—Nos. 597 and 599.

Laying Crosswalks.

Brandt Place—At Aqueduct avenue.

REPORT OF THE OPERATIONS OF THE BUREAU OF SEWERS DURING THE YEAR.

I. Contracts Completed and Accepted During the Year 1910.

Location of Work, Sewers, etc.	Final Quantities, Linear Feet.			Cost of Work at Contract Price.
	Concrete Sewer.	Pipe Sewer.	Total, All Kinds.	
Randall avenue, between Tiffany street and Coster street, etc.	....	1,858.23	1,858.23	$14,465 15
Jerome avenue, between East 208th street and summit north of Gun Hill road	....	1,337.30	1,337.30	10,126.41
Valentine avenue, between East 198th street and East 197th street, etc.	....	1,070.80	1,070.80	5,689 05
Lind avenue, between West 167th street and the first summit south of West 170th street	....	1,420.50	1,420.50	12,807.30
*Completing the contract for constructing the storm relief tunnel sewer between Webster avenue and Harlem River, etc.	....	....	....	†255,603 33
Receiving basins at the northeast and southeast corners of 179th street and Walnut avenue	....	39.00	39.00	348 50
Townsend avenue, between East 176th and East 175th streets	....	386.00	386.00	1,068 56
Receiving basin at the southwest corner of Andrews avenue and Fordham road	....	10.70	10.70	180.00
Teller avenue, between East 167th street and summit north of East 168th street	....	997.30	997.30	7,339 02
Receiving basins at the northwest corner of Barry street and Longwood avenue and northwest corner of Garrison avenue and Longwood avenue	....	41.20	41.20	389 20
Van Courtlandt avenue, between Jerome avenue and Grand Boulevard and Concourse	....	555.30	555.30	2,416 23
West 230th street, between Broadway and Corlear avenue	1,148.10	15.00	1,163.10	10,451 51
Teller avenue, between Morris avenue and East 170th street	....	1,455.90	1,455.90	10,554 40
West 176th street, between Sedgwick avenue and Undercliff avenue, and south in Undercliff avenue, from West 176th street to Washington Bridge	....	2,087.45	2,087.45	13,539 35
Receiving basins at northeast and southeast corners of Southern boulevard and proposed East 163d street (Dongan street), etc.	....	92.90	92.90	587 90
Lafayette avenue (East 156th street), between Westchester Creek and Avenue A, etc.	6,033.40	137.50	6,170.90	625,433 80
Eden avenue, between East 174th street and East 173d street	....	437.30	437.30	2,320 95
Grand Boulevard and Concourse (both sides), between East 204th street and East 200th street	....	848.60	848.60	4,349.09
Mosholu Parkway South, near Jerome avenue, and Mosholu Parkway North, at intersection of Jerome avenue, etc.	708.30	11,133.60	11,841.90	76,125.90
Eden avenue, between East 173d street and Belmont street, etc.	....	414.10	414.10	1,657 90
Taking up and relaying sewer in Canal place, from East 140th street, etc.	....	116.50	116.50	516 00
West 259th street, between Broadway and Riverdale avenue	1,290.10	1,298.50	2,588.60	27,171 76

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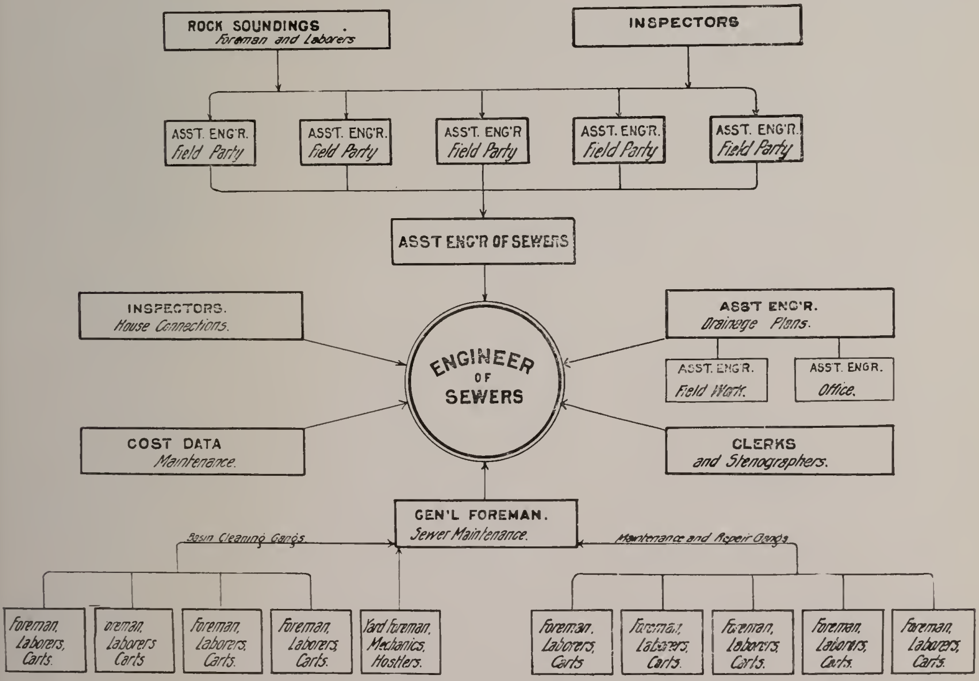
†Includes $975, amount paid for extra excavation at outlet.

*Paid for by cubic yard of concrete, etc.

Location of Work, Sewers, etc.	Final Quantities, Linear Feet.			Cost of Work at Contract Price.
	Concrete Sewer.	Pipe Sewer.	Total, All Kinds.	
Mosholu avenue, between Broadway and Von Humboldt avenue, etc.	343.40	3,039.70	3,383.10	29,258 45
Ryer avenue, between Burnside avenue and East 178th street, etc.	....	443.50	443.50	2,265 61
West 171st street, between Harlem River and Sedgwick avenue, etc.	....	1,200.10	1,200.10	9,661 34
Receiving basins at southeast corner Morris Park avenue and Wallace avenue, etc.	....	162.20	162.20	1,311 50
‡East 166th street, between Morris avenue and Carroll place, etc.	....	9,380.00	10,389.40	$62,853 93
Receiving basins at northeast and southeast corners, East 174th street and Eastburn avenue	....	46.50	46.50	390 47
Receiving basins, west side Crotona Park East, apposite East 173d street	....	18.80	18.80	248 19
Receiving basins southeast corner Aqueduct avenue and Fordham road	....	29.10	29.10	189 00
*Additional foundations for sewer in East 140th street, between Park avenue and Canal place, etc.	....	....	....	4,113 21
Whitlock avenue, between Whittier street and Hunts Point avenue	....	1,924.50	1,924.50	14,164 15
Total	9,523.30	41,998.08	52,530.78	$1,207,597 16

*Paid for by cubic yard of concrete, etc.
‡Brick sewer, 1,009.40 linear feet.

ORGANIZATION.



BUREAU OF SEWERS.

II. *Financial Statement of Contracts in Force During Year Ending December* 31, 1910, *on Which Payments Have Been Certified, Amount of Seventy Per Cent. Payments.*

Title of Contract.	Date of Execution.	Estimated Cost of Work.	Total Amount Earned.	Total Amount Retained.	Total Amount Certified.	Amount Certified During Year.
Rebuilding sewer in Hunts Point road, between Ryawa avenue and north line of Payne avenue	Sept. 27, 1909	$99,518 75	$80,045 70	$24,013 71	$56,031 99	$56,031 99
Relief drain in Morris Park avenue, from existing drain at a point about 50 feet east of Victor street to existing outlet at a point about 150 feet west of Taylor street	Dec. 29. 1909	15,111 60	11,676 38	3,502 91	8,173 47	8,173 47
West 178th street, between Harlem River and Sedgwick avenue, etc	April 18, 1910	76,690 50	23,567 50	7,070 25	16,497 25	16,497 25
Belmont avenue, between East 175th street and East 177th street	June 4, 1910	9,931 31	6,360 00	1,908 00	4,452 00	4,452 00
Seabury place, between Charlotte street and Boston road	June 6, 1910	7,535 25	4,543 00	1,362 90	3,180 10	3,180 10
East 174th street, between Boston road and West Farms road, etc	Aug. 9, 1910	18,417 40	4,797 00	1,439 10	3,357 90	3,357 90
Drainage street south of Boscobel place, between Undercliff avenue and Aqueduct avenue, etc	Aug. 10. 1910	43,132 00	7,764 50	2,329 35	5,435 15	5,435 15
Completing the contract for constructing an outlet sewer in White Plains road, between East River and East 152d street, etc	Aug. 29, 1910	621,000 00	27,573 95	8,272 19	19,301 76	19,301 76
Hoe avenue, between Boston road and East 174th street, etc	Sept. 9, 1910	56,039 00	16,868 50	5,060 55	11,807 95	11,807 95
West 242d street, between Broadway and Waldo avenue, etc	Oct. 11, 1910	52,639 90	2,540 00	762 00	1,778 00	1,778 00
East 140th street, between Park avenue and Canal place	Jan. 24, 1910	7,408 80	5,736 00	1,720 80	4,015 20	4,015 20
Totals	....	$1,007,424 51	$191,472 53	$57,441 76	$134,030 77	$134,030 77
White Plains road, between East River and East 152d street (declared abandoned May 16, 1910)	Oct. 16. 1909	671,725 50	12,510 00	3,753 00	8,757 00	8,757 00
Totals	....	$1,679,150 01	$203,982 53	$61,194 76	$142,787 77	$142,787 77

President Miller and Party on Tour of Inspection, Webster Storm Relief Sewer.

III. Payments on Acceptance and Final Amounts.

Title of Contract.	Date of Execution.	Date of Completion.	Estimated Cost of Whole Work.	Total Amount Certified as Actual Cost of Whole Work.	Approximate Variation Between Estimated and Actual Cost of Whole Work Shown in Percentage.	Total Amount Certified During Year.
Randall avenue, between Tiffany street and Coster street, etc.	May 24, 1909	Feb. 23, 1910	$14,544 62	$14,465 15	— 0.55	$6,745 34
Jerome avenue, between East 208th street and summit north of Gun Hill road	Mar. 15, 1909	Mar. 30, 1910	8,771 00	10,126 41	+13.38	4,700 71
Valentine avenue, between East 198th street and East 197th street, etc.	July 23, 1909	Mar. 30, 1910	7,314 20	5,689 05	—28.57	3,318 08
Lind avenue, between West 167th street and first summit south of West 170th street	May 18, 1909	Apr. 1, 1910	12,932 50	12,807 30	— 0.98	5,607 10
Completing the contract for the construction of the storm relief tunnel sewer, between Webster avenue and Harlem River, etc.	Mar. 2, 1909	May 5, 1910	275,278 00	254,628 33	— 8.11	*60,126 87
Receiving basins at northeast and southeast corners of 179th street and Walton avenue	Jan. 10, 1910	Apr. 13, 1910	357 01	348 50	— 0.24	348 50
Townsend avenue, between East 176th street and East 175th street	Jan. 10, 1910	May 3, 1910	1,123 60	1,068 56	— 0.51	1,068 56
Receiving basins at southwest corner Andrews avenue and Fordham road	Apr. 5, 1910	May 3, 1910	180 00	180 00	....	180 00
Teller avenue, between East 167th street and summit north of East 168th street	Sept. 17, 1909	May 14, 1910	7,139 30	7,339 02	+ 2.72	6,064 74
Receiving basins at northwest corner Barry street and Longwood avenue, etc.	May 26, 1910	June 22, 1910	389 00	389 20	+ 0.05	389 20
Van Cortlandt avenue, between Jerome avenue and Grand Boulevard and Concourse, etc.	Jan. 10, 1910	June 18, 1910	2,444 61	2,416 23	— 1.18	2,416 23
West 230th street, between Broadway and Corlear avenue	Aug. 30, 1909	June 30, 1910	10,475 00	10,451 51	— 0.22	9,174 29
Teller avenue, between Morris avenue and East 170th street	Sept. 17, 1909	July 2, 1910	10,627 20	10,554 40	— 0.69	7,538 24
West 176th street, between Sedgwick avenue and Undercliff avenue, etc.	Sept. 23, 1909	July 2, 1910	12,484 00	13,539 35	+ 7.79	8,705 15
Receiving basins on northeast and southeast corners of Southern boulevard and proposed East 163d street, etc.	May 31, 1910	July 5, 1910	585 00	587 90	+ 0.49	587 90
Lafayette avenue (East 156th street), between Westchester Creek and Avenue A, etc.	June 7, 1907	Nov. 30, 1910	656,137 00	625,433 80	— 4.91	139,312 60
Eden avenue, between East 174th street and East 173d street	Mar. 29, 1910	July 15, 1910	2,142 00	2,320 95	+ 7.71	2,320 95
Grand Boulevard and Concourse (both sides), between East 204th street and East 200th street, etc.	Dec. 24, 1909	July 26, 1910	3,927 10	4,349 09	+ 9.70	4,349 09
Mosholu parkway, between Mosholu Parkway South, near Jerome avenue, and Mosholu Parkway North, at the intersection of Jerome avenue, etc.	Jan. 18, 1909	Aug. 6, 1910	77,583 00	76,125 90	— 1.91	40,158 50
Eden avenue, between East 173d street and Belmont street, etc.	May 26, 1910	Aug. 27, 1910	1,616 80	1,657 90	+ 2.48	1,657 90

Title of Contract.	Date of Execution.	Date of Completion.	Estimated Cost of Whole Work.	Total Amount Certified as Actual Cost of Whole Work.	Approximate Variation Between Estimated and Actual Cost of Whole Work Shown in Percentage.	Total Amount Certified During Year.
Taking up and relaying sewer in Canal place, from East 140th street to a point 110 feet southerly therefrom	July 12, 1910	Sept. 2, 1910	490 00	516 00	+ 5.04	516 00
West 259th street, between Broadway and Riverdale avenue	July 9, 1909	Oct. 3, 1910	25,502 28	27,171 76	+ 6.14	20,227 76
Mosholu avenue, between Broadway and Von Humboldt avenue, etc	Mar. 18, 1909	Sept. 29, 1910	26,873 33	29,258 45	+ 8.15	16,787 78
Ryer avenue, between Burnside avenue and East 178th street, etc	Aug. 9, 1910	Nov. 2, 1910	2,228 78	2,265 61	+ 1.63	2,265 61
West 171st street, between Harlem River and Sedgwick avenue, etc	Jan. 13, 1910	Nov. 26, 1910	9,874 80	9,661 34	— 2.21	9,661 34
Receiving basins at southeast corner Morris Park avenue and Wallace avenue, etc	Sept. 9, 1910	Dec. 3, 1910	1,320 00	1,311 50	— 0.65	1,311 50
East 166th street, between Morris avenue and Carroll place, etc	Jan. 25, 1906	Dec. 3, 1910	62,971 50	62,853 93	— 0.19	23,523 40
Receiving basins at northeast and southeast corners of East 174th street and Eastburn avenue, etc.	Nov. 7, 1910	Dec. 8, 1910	390 46	390 47	....	†343 97
Receiving basins on west side of Crotona Park East, opposite East 173d street	Nov. 7, 1910	Dec. 6, 1910	248 23	248 19	— 0.02	‡229 39
Whitlock avenue, between Whittier street and Hunts Point avenue	Jan. 4, 1910	Dec. 29, 1910	13,922 50	14,164 15	+ 1.71	14,164 15
Additional foundation for sewer in East 140th street, between Park avenue and Canal place, etc	July 12, 1910	Dec. 27, 1910	2,838 00	4,113 21	+31.00	4,113 21
Receiving basins at southeast corner Aqueduct avenue and Fordham road	Nov. 21, 1910	Dec. 31, 1910	189 00	189 00	....	§159 90
Totals	....	....	$1,252,899 82	$1,206,622 16	— 3.84	$398,078 96

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*Includes $1,000 retained amount payment. †$46.50 retained as security for repairs. ‡$18.80 retained as security for repairs. §$29.10 retained as security for repairs.

IV. Tabulation Showing Average Prices as Bid During the Years 1909 *and* 1910 *on Various Contracts by the Successful Bidders.*

Kind of Work, per Linear Foot.	1909		1910	
	Number of Bids Included in Average.	Average Price.	Number of Bids Included in Average.	Average Price.
Concrete sewer, 7-foot 9-inch by 8-foot 0-inch (double)	..	....	1	$30 00
Concrete sewer, 12-foot 9-inch by 8-foot 0-inch	..	....	1	30 00
Concrete sewer, 4 feet 9 inches diameter (reinforced with steel bars)	..	....	1	20 00
Concrete sewer, 4 feet 9 inches diameter	..	....	1	15 00
Concrete sewer, 3 feet 9 inches diameter	1	8 00	..	....
Concrete sewer, 3 feet 6 inches diameter	1	10 00	2	11 91
Concrete sewer, 3 feet 3 inches diameter	..	....	1	10 00
Concrete sewer, 3 feet 0 inch diameter	2	8 00	2	8 20
Concrete sewer, 34-inch by 46-inch	1	7 00	1	7 00
Concrete sewer, 32-inch by 44-inch	1	6 00	2	7 91
Concrete sewer, 2 feet 9 inches diameter	..	....	2	8 19
Wooden stave sewer, 4 feet 9 inches diameter	..	....	1	20 00
Cast-iron pipe sewer, 30 inches diameter	1	6 60	1	8 00
Cast-iron pipe sewer, 18 inches diameter	..	....	1	5 00
Vitrified pipe sewer, 30 inches diameter	9	5 32	6	5 94
Vitrified pipe sewer, 24 inches diameter	4	4 25	5	3 49
Vitrified pipe sewer, 20 inches diameter	2	5 00	3	2 93
Vitrified pipe sewer, 18 inches diameter	11	3 27	8	4 00
Vitrified pipe sewer, 15 inches diameter	17	3 27	13	3 71
Vitrified pipe sewer, 12 inches diameter	30	2 70	19	2 90
Vitrified pipe sewer, 8 inches diameter	1	2 70	..	....
Vitrified pipe sewer, 6 inches diameter	1	1 75	..	....
Spurs	17	1 16	10	1 33
Manholes	30	63 00	16	58 36
Manhole head and cover	..	....	1	25 00
Receiving basins	18	160 10	20	164 26
Catch basins	..	....	2	105 00
Rock excavation (per cubic yard)	22	2 18	14	2 08
Excavation of all kinds, cubic yards	2	3 13	2	1 90
Class "A" concrete, per cubic yard	5	7 99	2	6 01
Class "B" concrete, per cubic yard	13	5 69	8	5 89
Class "C" concrete, per cubic yard	1	24 75	..	....
Class "D" concrete, per cubic yard	3	7 25	1	6 00
Granite masonry, per cubic yard	1	100 00	..	....
Brick masonry, per cubic yard	1	20 00	..	....
Rubble masonry in mortar, per cubic yard	2	8 50	..	....
Rubble masonry, dry, per cubic yard	1	4 00	..	....
Broken stone, per cubic yard	9	1 64	3	1 19
Embankment, per cubic yard	2	95	..	....
Vitrified brick pavement, per square yard	1	8 00	1	4 00
Timber (feet B. M.), per thousand	11	36 82	6	24 11
Piles (per linear feet)	6	41	2	32
Steel bars, per pound	17	04¾	6	.032
Structural steel, per ton	2	75 00	1	40 00
Wrought iron, per pound	1	07½	..	....
Wrought-iron fence, per linear foot	..	....	1	4 00
Cast iron, per pound	1	05	..	....
Galvanized wire netting, per square foot	4	09	1	05
Drain pipe, 12 inches to 24 inches diameter, per foot	1	1 50	1	1 49

Kind of Work, per Linear Foot.	1909		1910	
	Number of Bids Included in Average.	Average Price.	Number of Bids Included in Average.	Average Price.
Drain pipe, 12 inches diameter, per foot.........	7	91	3	86
Drain pipe, 3 inches diameter, per foot..........	1	20	..	....
Cast-iron pipe, 24 inches diameter, per pound....	1	03	..	....
Risers, 6 inches diameter, per foot.............	2	75	..	....
Six-inch pipes as risers, including supporting concrete, per foot..........................	..	....	2	1 46
Wooden stave flume, 5 foot 6 inches diameter, per linear foot.............................	1	20 00	..	....
Waterproofing, per square yard................	1	2 00	..	....

V. Summary of Payments Made on Contracts in Force and Under Construction During the Year 1910.

Number of 70 per cent. payments forwarded during the year 1910....	86	....
Amount paid to contractors by 70 per cent. payments................	..	$239,618 76
Number of 85 per cent. payments forwarded during the year 1910....	2	....
Amount paid to contractors by 85 per cent. payments................	..	12,591 90
Number of payments on acceptance forwarded during the year 1910..	32	....
Net amount paid to contractors by payments on acceptance..........	..	272,651 07
Number of payments of amounts retained as security for repairs, forwarded during the year 1910..................................	2	....
Net amount paid to contractors on account of security for repairs....	..	16,000 00
Total number of payments of all kinds forwarded during the year 1910.......................................	122	....
Total amount paid to contractors during the year 1910...	..	$540,861 73

VI. Summary of Contracts.

Number of Contracts.	In Force January 1, 1910.		Executed During Year Ending December 31, 1910.		Total.	
	Sewers.	Receiving Basins.	Sewers.	Receiving Basins.	Sewers.	Receiving Basins.
Completed during the year 1910	15	....	*9	8	24	8
In progress at end of year ending December 31, 1910.	2	....	12	1	14	1
Totals............	†17	....	21	9	38	9

*Includes two President's orders.

†Does not include one contract in force on January 1, 1910, declared abandoned on May 16, 1910.

AVE. A OUTLET SE
PRESIDENT MILLER AND PARTY ON INSPECTION TOUR.
JUNE 23rd 1910
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President Miller and Party on Tour of Inspection of Avenue A Outlet Sewer.

VII. *Summary of Work Done Prior to and Since Annexation in* 1874 *to December* 31, 1910—*Combined Storm Water and Sanitary Sewers.*

Items.	Linear Feet of Concrete Sewer.	Linear Feet of Brick Sewer.	Linear Feet of Wooden Stave Sewer.	Linear Feet of Pipe Sewer.	Total Length of Sewers, All Kinds.		Number of Spurs.	Number of Manholes Built.	Number of Manholes Rebuilt.	Number of Manhole Heads and Covers.	Number of Ventilators,	Number of Receiving Basins Built.	Number of Receiving Basins Rebuilt.	Number of Catch Basins	Linear Feet of Concrete Drain 3 Feet 9 Inches by 6 Feet 0 Inches.
					Linear Feet.	Miles.									
First quarter............	721.00	....	..	6,219.31	6,940.31	1.314	748	70	..	..	..	5	..	. ..	3,345
*See note...............	....	....	..	3,201.45	3,201.45	0.606	179	31	..	..	..	10	..	..	....
Second quarter..........	729.50	....	..	9,929.96	10,659.46	2.019	1,112	102	..	..	..	32	..	..	....
Third quarter............	341.05	6.00	..	8,653.55	9,000.60	1.705	952	90	..	1	..	23	..	2	....
Fourth quarter...........	908.10	....	22	11,746.35	12,676.45	2.401	1,405	395	..	..	..	24	..	1	....
Totals for 1910....	2,699.65	6.00	22	39,750.62	42,478.27	8.045	4,396	688	1	1	..	94	..	3	3.45
Totals prior to January 1, 1874 (before annexation)	....	....	..	17,133.60	17,133.60	3.245	......	105	..	..	..	130	..	..	....
Totals, January 1, 1874, to January 1, 1891 (Department of Public Parks).	..... .	54,551.71	..	121,773.89	176,325.60	33.395	......	1,603	..	..	..	567	..	..	....
Totals, January 1, 1891, to January 1, 1898 (Commissioner of Street Improvements)	....	112,012.80	..	275,095.61	387,108.41	73.316	68,565	3,923	..	..	..	819	..	..	....
Totals, January 1, 1898, to January 1, 1902 (Department of Sewers)......	....	87,663.47	..	240,047.27	327,710.74	62.066	68,267	3,113	..	..	..	621	..	..	....
Totals, January 1, 1902, to January 1, 1911 (President, Borough of The Bronx)	43,301.90	36,421.95	22	362,968.97	442,714.82	83.848	50,949	4,327	1	2	2	1,215	2	29	119.45
Totals to January 1, 1911..............	43,301.90	290,649.93	22	1,017,019.34	1,350,993.17	255.870	187,781	13,071	1	2	2	3,352	2	29	119.45

*Built under supervision of Bureau of Highways and reported in first quarter, 1910.

Items.	Cubic Yards of Brick Masonry.	Cubic Yards of Rubble Masonry in Mortar.	Cubic Yards of Dry Rubble Masonry.	Cubic Yards of Broken Stone.	Feet (B. M.) of Timber.	Linear Feet of Piles.	Tons of Structural Steel.	Pounds of Steel Bars.	Tons of Old Rails.	Pounds of Wrought Iron.	Pounds of Cast Iron.	Linear Feet of 24-inch Cast Iron Pipe.
First quarter	......	12.00	......	184.00	89,282	8,957	0.433	10,740.0	......	99	859	......
Second quarter	20.39	......	45.00	15.60	30,629	5,347	......	70,003.8	274.137	......	......	......
Third quarter	......	......	24.90	......	120,330	38,990	2.650	386,137.9	......	......	......	......
Fourth quarter	......	......	......	103.00	81,985	11,773	3.195	164,674.0	......	......	......	......
Totals for year 1910	20.39	12.00	69.90	302.60	322,226	65,067	6.278	631,555.7	274.137	99	859	......
*Totals prior to January 1, 1874 (before annexation)	......	......	......	......	....	......	......	....	......	......	......	......
*Totals, January 1, 1874, to January 1, 1891 (Department of Public Parks)	......	......	......	......	....	......	......	....	......	......	......	......
Totals, January 1, 1891, to January 1, 1898 (Commissioner of Street Improvements)	......	2,685.09	......	11,174.68	6,413,496	380,231	......	....	......	......	......	......
Totals, January 1, 1898, to January 1, 1902 (Department of Sewers)	......	5,748.13	......	9,466.64	3,508,698	212,268	......	....	......	......	......	......
Totals, January 1, 1902, to January 1, 1911 (President, Borough of The Bronx)	1,076.23	6,041.05	97.20	23,143.15	6,894,769	885,300	200.492	2,146,254.5	274.137	3,219	23,664	56.5
Totals to January 1, 1911, except as noted	1,076.23	14,474.27	97.20	43,784.47	16,816,963	1,477,799	200.492	2,146,254.5	274.137	3,219	23,664	56.5

*Records not available.

Items.	Linear Feet of Concrete Drain, 3 ft. 6 in. by 6 feet.	Linear Feet of 12-inch to 24-inch Drain Pipe.	Linear Feet of 3-inch Drain Pipe.	Linear Feet of 6-inch Pipe as Risers.	Cubic Yards of Rock Excavation.	Cubic Yards of Excavation, all kinds (Earth).	Cubic Yards of Excavation in Tunnel.	Cubic Yards of Concrete (Extra).	Cubic Yards of Class A Concrete.	Cubic Yards of Class B Concrete.	Cubic Yards of Class C Concrete.	Cubic Yards of Class D Concrete.	Cubic Yards of Granite Masonry.
First quarter..................	......	73.0	1	......	8,310.90	7,478.00	......	......	327.5	90.0	......	20	......
Second quarter................	22.23	23.4	......	......	8,494.26	2,433.00	......	......	......	234.5	......	......	......
Third quarter..................	......	27.0	......	40.0	4,494.20	900.00	......	..	3,278.0	1,671.3	......	......	......
Fourth quarter.................	......	126.0	......	4.0	9,700.30	3,300.00	......	......	2,030.2	577.3	......	......	......
Totals for 1910..........	22.23	249.4	1	44.0	30,999.66	14,111.00	......	......	5,635.7	2,573.1	......	20	......
*Totals prior to January 1, 1874 (before annexation)..........	......	......	......	......	....	......	......	......	......	......	......	......	......
*Totals, January 1, 1874, to January 1, 1891 (Department of Public Parks)..............	......	......	......	......	....	......	......	......	......	......	......	......	......
Totals, January 1, 1891, to January 1, 1898 (Commissioner of Street Improvements)........	......	......	......	......	423,172 79	......	......	504.55	......	......	......	......	......
Totals, January 1, 1898, to January 1, 1902 (Department of Sewers)	......	......	......	......	428,285.58	......	......	796.25	......	......	......	......	......
Totals, January 1, 1902, to January 1, 1911 (President, Borough of The Bronx)........	147.23	7,720.5	1,246	3,436.3	408,991.86	119,318.28	49,210	11,200.87	12,436.3	20,433.7	481.8	11,414	2.4
Totals to January 1, 1911, except as noted.........	147.23	7,720.5	1,246	3,436.3	1,260,450.23	119,318.28	49,210	12,501.67	12,436.3	20,433.7	481.8	11,414	2.4

*Records not available.

Items.	Square Feet of Galvanized Wire Netting.	Square Feet of Expanded Metal.	Square Feet of Water-proofing.	Linear Feet of Wooden Stave Flume.	Number of Sewer Gates.	Cubic Yards of Embank-ment.	Square Yards of Riprap.	Square Yards of Telford Macadam.
First quarter	632	......	486	......	......	89	......	......
Second quarter	......	5,344	......	......	......	......	......	......
Third quarter	150	......	......	......	......	20,000	500	......
Fourth quarter	220	......	......	......	......	7,000	3,000	267
Totals for year 1910	1,002	5,344	486	......	......	27,089	3,500	267
*Totals prior to January 1, 1874 (before annexation)	......	......	......	......	......	......	......	......
*Totals, January 1, 1874, to January 1, 1891 (Department of Public Parks)	......	......	......	......	......	......	......	......
Totals, January 1, 1891, to January 1, 1898 (Commissioner of Street Improvements)	......	......	......	......	......	......	......	......
Totals, January 1, 1898, to January 1, 1902 (Department of Sewers)	......	......	......	......	......	......	......	......
Totals, January 1, 1902, to January 1, 1911 (President, Borough of The Bronx)	7,050	8,904	716	27	4	32,666	3,500	267
Totals to January 1, 1911, except as noted	7,050	8,904	716	27	4	32,666	3,500	267

*Records not available.

VIII. *Summary of Work Done Prior To and Since Annexation (June 6, 1895) to December 31, 1910, Sanitary Sewers.*

Items.	Linear Feet of Brick Sewer.	Linear Feet of Pipe Sewer.	Total Length of Sewers. All Kinds.		Number of Spurs.	Number of Manholes.	Number of Catch Basins.	Number of Flush Tanks	Cubic Yards of Rock Excavation.	Cubic Yards of Concrete (Extra).	Cubic Yards of Rubble Masonry in Mortar.
			Linear Feet.	Miles.							
First quarter	....	....	....	....	....	....	....	4	....	....	....
Second quarter	....	....	....	....	....	....	....	....	140.00	....	....
Third quarter	....	396.00	396.00	0.075	19	9	....	....	260.00	....	....
Fourth quarter	....	167.30	167.30	0.032	10	2	....	....	194.50	....	....
Totals for year 1910	....	563.30	563.30	0.107	29	11	....	....	594.50	....	....
*Totals prior to June 6, 1895 (before annexation)	....	7,774.81	7,774.81	1.473	....	....	....	....	....	....	....
Totals, June 6, 1895, to January 1, 1898 Commissioner of Street Improvement	7,194.70	14,237.63	21,432.33	4.059	1,216	81	....	....	1,428.20	23.9	1,418.36
Totals, January 1, 1898, to January 1, 1902 (Department of Sewers)	....	22,051.23	22,051.23	4.176	1,611	90	....	....	1,500.00	6.66	318.74
Totals, January 1, 1902, to January 1, 1911 (President, Borough of Bronx)	....	136,397.78	136,397.78	25.833	9,679	1,065	6	4	44,578.30	....	395.46
Totals to January 1, 1911, except as noted	7,194.70	180,461.45	187,656.15	35.541	12,506	1,236	6	4	47,506.50	30.56	2,132.56

*Records not available.

Items.	Cubic Yards of Broken Stone.	Feet (B. M.) of Timber.	Linear Feet of Piles	Linear Feet of 12-inch to 24-inch Drain Pipe.	Linear Feet of 6-inch to 8-inch Drain Pipe.	Linear Feet of 3-inch Vitrified Pipe.	Linear Feet of 6-inch Pipe as Risers.	Linear Feet of 3-inch Galvanized Iron Pipe.	Linear Feet of 12-inch Cast Iron Pipe.
First quarter	....	....	....	....	....	....	....	....	....
Second quarter	....	....	....	....	....	....	....	....	....
Third quarter	....	2,000	....	....	....	....	....	....	....
Fourth quarter	....	683	....	....	....	....	....	....	....
Totals for year 1910	....	2,683	....	....	....	....	....	....	....
*Totals prior to June 6, 1895 (before annexation)	....	....	....	....	....	....	....	....	....
Totals, June 6, 1895, to January 1, 1898 (Commissioner of Street Improvements)	171.90	54,259	....	360	....	....	....	....	....
Totals, January 1, 1898, to January 1, 1902 (Department of Sewers)	39.79	28,449	....	99	....	....	....	....	....
Totals, January 1, 1902, to January 1, 1911 (President, Borough of the Bronx)	....	117,811	2,683	2,082	35	108	3,207	64	12
Totals to January 1, 1911, except as noted	211.69	200,519	2,683	2,541	35	108	3,207	64	12

*Records not available.

Miles of Sewers in the Borough of The Bronx on December 31, 1910—

Combined Storm Water and Sanitary Sewers	255.870
Sanitary Sewers	35.541
Total	291.411

Of the foregoing mileage of sewers built, about 266-1000 miles has been rebuilt, of which 2-10 miles was rebuilt during the year 1910. In addition to the foregoing mileage, there are about 12 9-10 miles of uncompleted work (sewers, etc.), and 123 receiving basins under contract on December 31, 1910.

IX. *Surface Water Drains Built Under Contract.*

Items.	*Lineal Feet of Drains Built.	Lineal Feet of 12-inch Drain Pipe.	No. of Spurs.	No. of Manholes.	No. of Manholes Frames.	Cubic Yards of Rock Excavation.	Cubic Yards of Excavation of All Kinds.	Cubic Yards of Class A Concrete.	Cubic Yards of Brick Masonry.	Cubic Yards of Rubble Masonry in Mortar	Cubic Yards of Dry Rubble Masonry.	Pounds of Steel Bars.	Tons of Structural Steel.	Square Feet of Galvanized Wire Netting.	Feet B. M. of Timber.	Lineal Feet of 3-inch Galvanized Iron Pipe.	Lineal Feet of 6-inch Cast-Iron Pipe.	Lineal Feet of 12-inch Cast-Iron Pipe.	Cubic Yards of Dry Stone Paving.
First quarter	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Second quarter	386	....	....	....	....	160	....	277	....	....	....	4,790	0.105	18	2,000	....	160	....	....
Third quarter	445	....	....	....	....	640	....	243	....	....	....	7,460	0.429	63	....	....	98	....	....
Fourth quarter	376	....	....	1	....	650	....	250	....	....	....	6,907	0.179	18	....	....	89	....	....
Totals for year 1910..	1,207	....	....	1	....	1,450	....	770	....	....	....	19,157	0.713	99	2,000	....	347	....	....
Totals prior to June 6, 1895 (Date of Annexation)....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Totals June 6, 1895 to January 1, 1898 (Department of Street Improvement)...	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Totals January 1, 1898, to January 1, 1902 (Department of Sewers)	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Totals January 1, 1902, to January 1, 1911 (President, Borough of Bronx).......	1,757	755.3	19	5	49	1,737	1,474.8	1,571	0.9	3,524	463	19,157	0.713	99	19,620	14.5	501	12	189.5
Totals to January 1, 1911	1,757	755.3	19	5	49	1,737	1,474.8	1,571	0.9	3,524	463	19,157	0.713	99	19,620	14.5	501	12	189.5

*Does not include length of drains improved.

X. Report with Reference to Local Improvements, Borough of The Bronx.

Local Improvements for Sewers, etc., and Receiving Basins, etc.	1st Quarter, Ending March 31, 1910.		2d Quarter, Ending June 30, 1910.		3d Quarter, Ending September 30, 1910.		4th Quarter, Ending December 31, 1910.		Total for Year 1910.	
	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.
1. Total authorized for these purposes	..	....	8	$105,500 00	9	$237,000 00	11	$234,400 00	28	$576,900 00
2. Let on contract	3	$79,012 50	5	20,057 36	9	798,105 08	9	216,622 84	26	1,113,797 78
3. Contract work completed	3	30,280 61	9	290,603 65	9	735,085 29	11	151,627 61	32	1,207,597 16
4. Contract work certified to the Board of Assessors	3	37,994 76	8	371,528 07	9	122,010 73	7	123,499 91	27	655,033 47
5. Contract work completed but not so certified	1	5,689 05	3	268,478 57	2	625,949 80	6	654,077 50	..	....
6. Contract work in progress on December 31, 1910, with estimated cost of same									15	$1,076,857 36

No. 2 (third quarter) includes 1 contract let during the year 1909 for $671,725 and relet during third quarter, 1910, for $621,000. No. 4 does not include three assessment lists forwarded for work built by private contract under permits. No. 5 (second quarter) includes 1 contract in amount $255,603.33, chargeable against corporate stock No. 1, therefore no assessment list is required.

XI. *Cement Tests During the Year* 1910.

	Rosendale Cement.	Portland Cement.	Total.
Number of barrels represented by samples taken	10	17,078	17,088
Tests made	8	2,528	2,536
Number of barrels accepted	10	16,946	16,956
Number of barrels rejected	..	132	132

XII. *Work in Connection With Preparation of Sewerage District Plans Completed During the Year* 1910.

Miles of sewer established	44.5
Tracings for filing	45
Black prints for filing	41
Study maps	9
Drainage studies	5
Investigations and reports	22
Estimates	6
Plans and sketches submitted	12
Prints of sketches submitted	11
Design of special sections	2
Surface grade tracings	7
Prints of grade tracings	4
Tracings of watersheds	4
Prints of watersheds	4
Tracings of final sections with sewers	1
Index maps colored to indicate various subjects	9
Observations	3
Sketches for field party	5
Prints of sketches for field party	5
Profiles for Sounders	9
Prints of profiles for Sounders	9
Linear feet of transit and chaining	234,800
Linear feet of leveling	305,000
Linear feet of line cleared	75,748

In Progress December 31, 1910.

Design and study of Modified Sewerage District No. 39S	1
Design and study of Modified Sewerage District No. 43 I	1
Design and study of sewer system and storm drains in Edenwald section	1
Study of remaining section lying north of Bronx and Pelham parkway and in the Hutchinson River watershed	1
Study of the section lying east of Westchester Creek	1
Tracing of final sections No. 39 and 47, showing sewers	1
Redesign of Sewerage District No. 47 (City Island)	1
Preparation of plans for Modified Sewerage District No. 42 B_2	1
Work of recording existing surface water drains	
Study of watershed of the Spuyten Duyvil outlet sewer	1
Keeping to date index books of drainage plans	

XIII. *Relative to Maintenance and Repairs of Sewers and Drains. Statement of Various Classes of Work Performed During the Year Ending December* 31, 1910.

	Linear Feet or Number Examined.	Linear Feet or Number Cleaned.	Linear Feet or Number Repaired.	Linear Feet or Number Built.
Sewers	445,222	796,277	419	......
Receiving or catch basins	242	7,525	60	5
Manholes	68	1,816	218	......
Pipe, stone and box drains or culverts	208	39,863	14,469	3,052
Open drains or ditches	1,660	78,787	853	......
Flush tanks	10	4	......	......

Cubic yards of excavating and filling in	7,959
Cubic yards of rubble masonry	33
Cubic yards of concrete cradle laid	13
Cubic feet of concrete	64
Linear feet of sheeting and shoring driven	656
Linear feet of sheeting and shoring drawn	510
Linear feet of curb repaired	40
Loads of dirt removed	18,764
Loads of stone carted	139
Square yards of pavement grouted	25

XIV. *Statement Showing the Nature and Extent of the Drainage Provisions Constructed and Under Maintenance, in Addition to Permanent Sewers and Appurtenances.*

Class of Work.	Total on December 31, 1910.
Pipe drains or culverts, linear feet	78,272
Stone drains or culverts, linear feet	83,854
Box drains or culverts, linear feet	17,246
Open drains or ditches, linear feet	87,897
Number of catch basins	477

Summary of Amount and Unit Cost of Work Done Under Maintenance During Year 1910.

Items and Class of Work.	First Quarter, 1910.			Second Quarter, 1910.			Third Quarter, 1910.			Fourth Quarter, 1910.			Summary, 1910.		
	Linear Feet or Number.	Total Cost.	Unit Cost.	Linear Feet or Number.	Total Cost.	Unit Cost.	Linear Feet or Number.	Total Cost.	Unit Cost.	Linear Feet or Number.	Total Cost.	Unit Cost.	Total Linear Feet or Number.	Total Cost.	Unit Cost.
Pipe Sewers—															
Examination	164,903	$303 86	.0018	93,608	$154 69	.0016	60,409	$125 14	.0021	83,240	$183 20	.002	402,160	$766 89	.002
Cleaning	212,703	4,803 30	.0226	230,852	3,583 41	.0155	167,965	3,255 46	.0194	151,007	2,732 14	.018	762,527	14,374 31	.019
Repairs	58	384 86	6.635	38	151 21	3.98	169	1,362 03	8.0595	114	895 22	7.853	379	2,793 32	7.370
Building	......	....	......	......	....	......	......	....	......	......	....	......	......	....	......
Brick or Concrete Sewers—															
Examination	18,081	23 17	.0013	5,161	7 85	.0015	16,210	21 44	.0013	3,610	10 89	.003	43,062	63 35	.001
Cleaning	10,393	1,028 05	.0989	12,231	1,512 54	.0123	4,830	2,131 14	.4412	6,296	2,423 57	.385	33,750	7,095 30	.210
Repairs	40	10 50	2.63	......	....	......	......	....	......	......	....	......	40	10 50	2.630
Building	......	....	......	......	....	......	......	....	......	......	....	......	......	....	......
Pipe Drains or Culverts—															
Examination	......	....	......	......	....	......	......	....	......	32	1 88	.059	32	1 88	.059
Cleaning	308	35 13	.1141	2,715	231 69	.0853	750	93 80	.1251	1,288	42 64	.033	5,061	403 26	.080
Repairs	38	6 00	.1580	122	65 02	.533	......	....	......	15	24 25	1.617	175	95 27	.544
Building	......	....	......	28	22 81	.81	......	....	......	24	35 95	1.498	52	58 76	1.130
Stone Drains or Culverts—															
Examination	50	81	.0162	100	11 25	.1125	......	....	......	......	....	......	150	12 06	.080
Cleaning	5,167	573 34	.1109	6,224	600 86	.0965	7,750	1,289 51	.1664	9,990	1,298 62	.130	29,131	3,762 33	.129
Repairs	1,818	1,836 67	1.01	3,011	2,520 09	.083	2,451	2,039 21	.8320	2,892	1,995 85	.690	10,172	8,391 82	.825
Building	540	1,068 41	1.98	487	910 20	1.87	340	592 46	1.7425	167	179 04	1.072	1,534	2,750 11	1.793
Box Drains or Culverts—															
Examination	26	50	.0192	......	....	......	......	....	......	......	....	......	26	50	.019
Cleaning	608	72 67	.1195	1,852	143 99	.0777	1,316	109 68	.0833	1,895	154 11	.081	5,671	480 45	.085
Repairs	264	154 33	.58	1,426	741 52	.52	1,153	480 41	.4167	1,279	511 27	.399	4,122	1,887 53	.458
Building	274	300 03	1.09	693	738 50	1.065	313	406 22	1.2978	186	166 95	.898	1,466	1,611 70	1.099
Open Drains or Ditches—															

Examination	860	3 00	.0035	800	2 00	.0025	......	....	......	......	....	......	1,660	5 00	.003
Cleaning	15,541	690 84	.0445	28,080	884 43	.0314	16,104	773 31	.0480	19,062	649 36	.034	78,787	2,997 94	.038
Repairs	537	395 74	.7369	221	30 38	.137	95	38 41	.4043	......	....	......	853	464 53	.545
Building	......	....	......	......	....	......	......	....	......	......	....	......	......	....	......
Receiving or Catch Basins—															
Examination	107	30 31	.2833	36	12 75	.3542	23	11 74	.5104	76	10 87	.143	242	65 67	.271
Cleaning	1,765	6,656 65	3.77	1,892	7,224 33	3.82	1,977	7,417 40	3.7518	1,891	5,603 27	2.963	7,525	26,901 65	3.575
Repairs	8	32 89	4.11	28	213 15	.761	16	109 71	6.8569	8	54 53	6.816	60	410 28	6.838
Building	......	....	......	5	138 20	27.64	......	....	......	......	....	......	5	138 20	27.64
Manholes—															
Examination	......	....	......	27	3 37	.125	39	5 51	.1413	2	12 12	6.06	68	21 00	.309
Cleaning	477	62 64	.1314	231	39 27	.17	166	58 46	.3522	942	79 28	.084	1,816	239 65	.132
Repairs	40	155 24	3.88	78	461 85	5.92	55	423 49	7.6998	45	204 61	4.547	218	1,245 19	5.712
Building	......	....	......	......	....	......	......	....	......	......	....	......	......	....	......
Flush Tanks—															
Examination	4	2 37	.59	2	1 40	.70	......	....	......	4	1 75	.438	10	5 52	.552
Cleaning	4	11 46	2.865	......	....	......	......	....	......	......	....	......	4	11 46	2.865
Repairs	......	....	......	......	....	......	......	....	......	......	....	......	......	....	......
Building	......	....	......	......	....	......	......	....	......	......	....	......	......	....	......
Total Cost		$18,642 77			$20,406 76			$20,744 53			$17,271 37			$77,065 43	

Sewer Yard and Shop.

Supplemental to the preceding tabulations the following is presented in relation to the work of the Bureau of Sewers, Borough of The Bronx, for the year 1910:

Storm relief tunnel sewer, from Webster avenue to the Harlem River.

The contract for completing, which was let to McDonald & Barry on the 12th day of January, 1909, was completed on May 5, 1910. This work was prosecuted vigorously at all times, and it was completed within the contract time.

The work done on this contract during 1910 was that of constructing the double sewer parallelling the existing sewer in Webster avenue and extending from the gate chamber to the north line of Wendover avenue, and the refilling and resurfacing of Webster avenue.

The approximate value of the work done on this contract during the year was $18,630.

Illustrations accompanying this report and numbered from 1 to 4, inclusive, show the conditions and points of interest at various times during the year 1910.

The area of the watershed drained by this sewer is approximately 1,500 acres.

The maximum section of the sewer as built is equivalent in capacity to a circle 13 feet 6 inches in diameter, and is capable of discharging 729,000 gallons per minute.

Outlet sewer, etc., in West 178th street, between Harlem River and Sedgwick avenue, etc.

This contract was let on March 24, 1910, Briggs & McLaughlin being the successful bidders. Work was ordered ahead on May 16, 1910, and has been vigorously prosecuted.

The only unusual feature (so far as the Borough of The Bronx is concerned) is the outlet, which, for a distance of 25 feet, is a stave sewer supported on piles.

Illustration No. 5 shows this section of the sewer.

Unionport Sewer System.

The contract for the outlet sewer, etc., in Lafayette avenue (East 156th street), between Westchester Creek and Avenue A, and in Avenue A, between Lafayette avenue and Greene lane, etc. (F. V. Smith Contracting Company, contractors), was completed on November 30, 1910.

The value of the work done during the year, upon which prices were bid, is approximately $25,730, the bulk of the work being the placing of embankment and rip-rap (the cost of which was included in the price bid per linear foot of sewer) over the completed sewer. This embankment amounts to approximately 76,000 cubic yards.

The total length of this sewer is approximately 6,170 feet, and the total cost of the work $625,433.80.

Among the other items entering into the work of construction of this contract were 25,926.7 cubic yards of concrete put in place in sewer sections, with 2,099,929 pounds of steel bars of various sizes for reinforcing.

Illustrations accompanying this report and numbered from 6 to 12, inclusive, show the conditions of the work at various times during the year.

The area of the watershed drained by this sewer is approximately 4,000 acres.

The maximum section of the sewer as constructed is equivalent in capacity to a circle 16 feet in diameter. This section consisted of three barrels, one 12 feet by 9 feet and two 10 feet by 8 feet. As an illustration for comparison, a touring car could be driven through any of the barrels of this sewer, or a locomotive through a circle to which its capacity is equal. This sewer is capable of discharging 470,700 gallons per minute.

The contract for constructing an outlet sewer, etc., in White Plains road, between East River and East 152d street, and in East 152d street, between White Plains road and Avenue B, etc., was let on September 7, 1909, to the Wakefield Construction Company for the sum of $671,725.50. The contract was executed on October 16, 1909, and the work was ordered ahead on November 15, 1909.

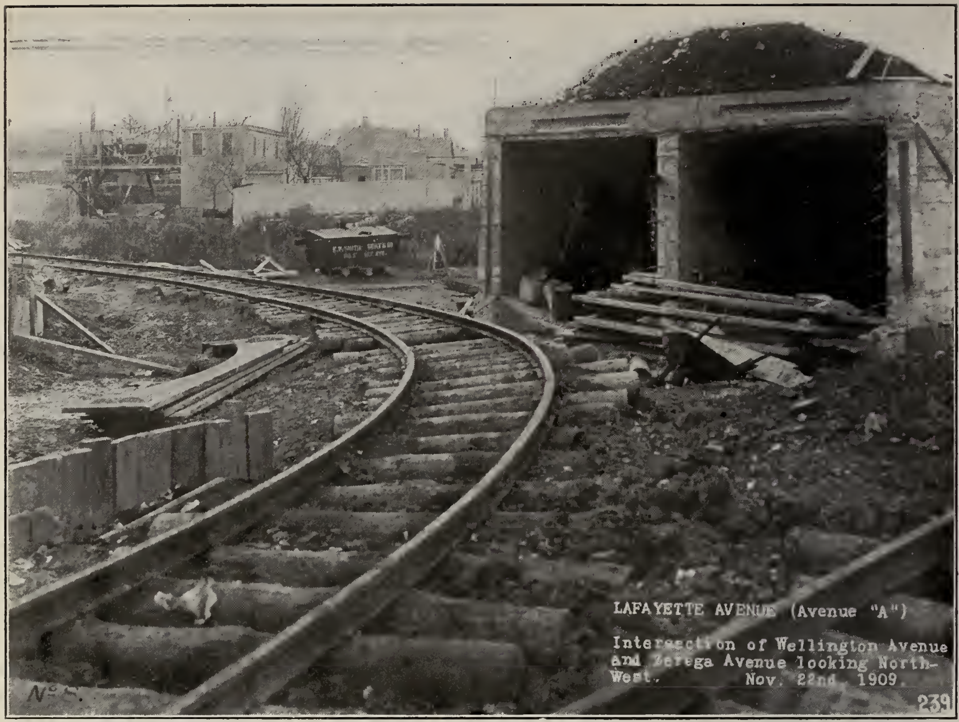
Owing to the lack of energy on the part of the contractor this contract was declared abandoned on May 16, 1910. It was relet on July 14, 1910, to F. V. Smith, and the work ordered ahead on September 12, 1910. Since then the work has been prosecuted vigorously, the value of the work done being approximately $25,000.

Illustrations accompanying this report numbered from 13 to 18, inclusive, show the conditions of the work at various times during the year.

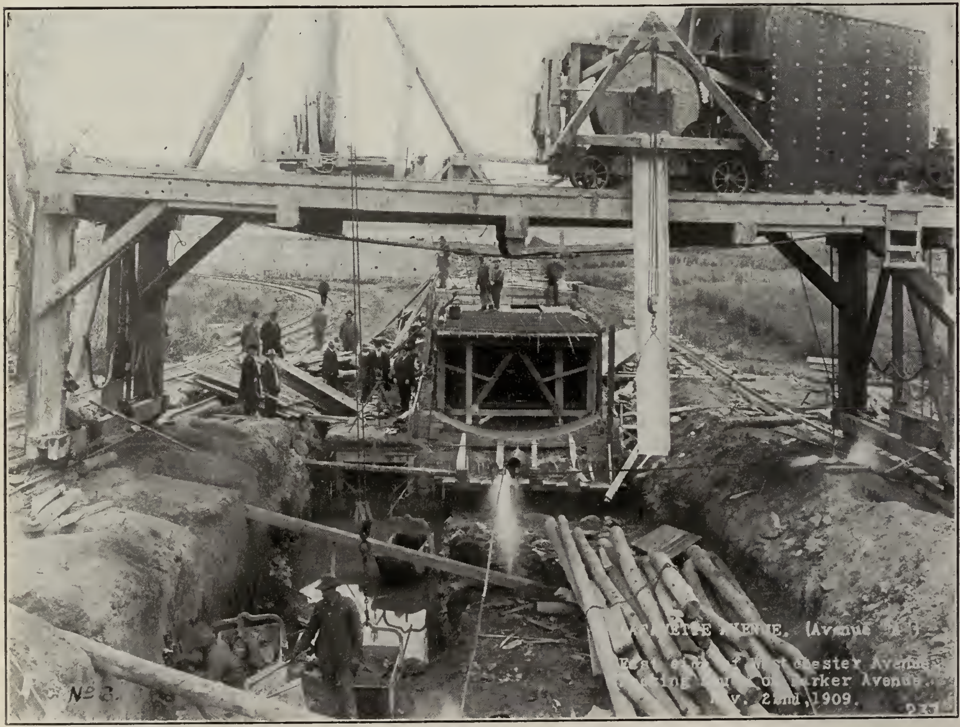
The area of the watershed drained by this sewer is approximately 7,925 acres.

The maximum section as built is equivalent in capacity to a circle 15 feet 6 inches in diameter, and will discharge about 423,000 gallons per minute.

In addition to the trunk sewers mentioned above the following works are either under construction or contemplated in the Unionport district:


LAFAYETTE AVENUE (Avenue "A")
Intersection of Wellington Avenue and Zerega Avenue looking North-West. Nov. 22nd, 1909.
239
No. 5

Avenue A Outlet Sewer.
Intersection of Wellington Avenue and Zerega Avenue, Looking Northwest.


LAFAYETTE AVENUE. (Avenue "A")
East side of Westchester Avenue looking South on Parker Avenue. Nov. 22nd, 1909.
No. 3

Avenue A Outlet Sewer.
East Side of Westchester Avenue, Looking South on Parker Avenue.

Sewer, etc., in Westchester avenue, between Zerega avenue and Castlehill avenue, and in Glover street, between Westchester avenue and Lyon avenue, and in Doris street, between Westchester avenue and summit north of Westchester avenue; in Ludlow avenue, between Pugsley avenue and Zerega avenue, and in Castlehill avenue, between Ludlow avenue and Blackrock avenue, and in East 177th street, between Ludlow avenue and Havemeyer avenue, and in Westchester avenue, between Pugsley avenue and Olmstead avenue.

This contract was let to the John J. Shea Contracting Company on October 15, 1910, the contract price being $59,148.81. It was executed November 7, 1910, and ordered ahead on November 28, 1910. Thus far only a small amount of excavating has been done.

Sewer, etc., in Westchester avenue, between Zerega avenue and Westchester square, and in Westchester square, between Westchester avenue and Walker avenue.

This contract was let on December 13, 1910, but is not yet executed. Vinton Contracting Company was the lowest bidder, the price bid being $81,985.

Sewer, etc., in Walker avenue, between Westchester square and Overing street, and in Benson avenue, between Westchester square and Walker avenue, and in Overing street, between Westchester avenue and Walker avenue, and in St. Peters avenue, between Westchester avenue and Walker avenue, and in Rowland avenue, between Westchester avenue and St. Raymonds avenue, and in Zerega avenue, between Westchester avenue and Glebe avenue, and in Tratman avenue, between Zerega avenue and Benson avenue, and in Frisby avenue, between Zerega avenue and Walker avenue, and in Glebe avenue, between Rowland avenue and Overing street, and in Maclay avenue, between St. Peters avenue and Benson avenue.

This contract was let on December 23, 1910, George M. Dunn being the lowest bidder, the amount of the bid being $64,592.60. This contract is not yet executed.

Drainage Plans.

The work of preparing drainage plans has been carried on as rapidly as the establishment of street lines and surface grades would permit, and the following have been completed:

Drainage plans for the territory lying east of the Bronx River.

Sewerage District No. 43L. This is a plan of drainage for that part of the Wakefield Drain Watershed lying north of 213th street, and contains about 214 acres.

Modified Sewerage District No. 43$_3$. This is a plan of drainage which modifies the trunk sewer in Westchester avenue at Blondell avenue. The modification of the original plan was caused by the changes in the street system.

Sewerage District No. 43 D. This is a plan of drainage for the area bounded by Lafayette avenue, Westchester Creek, East River, and Pugsley's Creek, and contains about 230 acres. This plan is a redesign of the original drainage plan and was prepared with the idea of bettering the conditions at the point of discharge of the outlet sewer.

Sewerage District No. 43 G. This is a redesign which comprises the trunk sewer and the lateral system of sewers of the Metcalf avenue sewer in the territory bounded by East 179th street, West Farms road, Rosedale avenue, East 177th street, Taylor avenue, Gleason avenue, Beach avenue, Metcalf avenue and the Bronx River, and contains an area of about 740 acres. A new drainage plan was prepared for the reason that the street surface grades affecting a large area had been modified, and as the original plan of drainage had not yet been approved it was recalled and a new plan substituted.

Modified Sewerage District No. 43 F_1. This is a modified plan of the Metcalf avenue trunk sewer between its point of connection with the White Plains road sewer at Cornell avenue and White Plains road, and Storey avenue and Metcalf avenue, together with the storm overflows located in Lacombe avenue at Bronx River and in Cornell avenue at the Bronx River. The original plan No. 43 F was modified for the reason that it was decided that the sewer system should be of the separate system type in the northerly section of the watershed; that is, the part of the watershed lying between Allerton avenue and the City line. The original design provided for a combined system of sewers for this area. The area affected by the modifications is about 1,750 acres.

Sewerage District No. 43 K_1. This is a modified plan of drainage for this sewerage district and comprises the area bounded by Van Nest avenue, Bear Swamp road, West Farms road and Williamsbridge road, and contains about 76 acres. This plan was prepared on account of changes in the street system and street surface grade.

Modified Sewerage District No. 43 G_1. This is a modification of the Metcalf avenue trunk sewer, between Metcalf avenue and Storey avenue, and Bronx Park avenue and 179th street; also the storm overflow in East 177th street into the Bronx River. The area of the watershed affected by this drainage plan is about 1,150 acres. Being a continuation of the Metcalf avenue trunk sewer, it was modified for the same reason given for Modified Sewerage District No. 43 F_1.

Sewerage District No. 43 H. This comprises the area bounded by the Bear Swamp road, West Farms road, Bronx River and Bronx Park, and contains about 250 acres.

Drainage plans completed for the territory lying west of the Bronx River:

Modified Sewerage District No. 33 X_4. This modifies the sewers in the vicinity of Ryer avenue and 175th street and affects about three acres. The modified plan was prepared on account of the changes in the street system and surface grades.

Modified Sewerage District No. 39 X. This modifies the sewer system in the vicinity of Kingsbridge terrace and Nindham place and affects an area of about six acres. The modification was made on account of the local conditions.

Modified Sewerage District No. 39 W. This is a modification of the sewer system in the territory bounded by West 240th street, Broadway, West 231st street and Spuyten Duyvil road, and comprises an area of about 61 acres. The modifications were made necessary by changes in the street system and surface grades.

Modified Sewerge District No. 37 E_3. This modifies the sewer system in the vicinity of Eden avenue and East 173d street, and affects an area of three acres. This plan was prepared on account of the changes that had been made in the street system and surface grades.

Modified Sewerge District No. 33 Y_4. This is a modification in the location of receiving basins in the vicinity of Valentine avenue and East 204th street, and affects an area of about three acres.

Modified Sewerage District No. 39 Y. This is a drainage plan of the sewers in the vicinity of 231st street and Kingsbridge avenue, and comprises an area of about six acres. The modification was made necessary by changes in the street system.

Modified Sewerage District No. 33 Z_4. This changes the location of the receiving basins in the vicinity of Park avenue and East 168th street, and was made necessary by changes in the street surface grades. The area affected is about 10½ acres.

Sewerage District No. 36 B_2 and 42 E_2. This includes plan of drainage for the territory bounded by Randall avenue, Coster street, Ryawa avenue and Tiffany street. It comprises an area of about 49 acres and was modified on account of changes in the street system and surface grades.

Modified Sewerage District No. 33 A_5. This modifies the sewers in the vicinity of Brown place and East 132d street, and comprises an area of about one acre. The plan was prepared to facilitate proposed improvements.

Cement Tests.

During the year 1910 there were 2,536 cement tests made, representing samples taken from 17,088 barrels of cement.

There is submitted with this report a graphical illustration of the results of some long-time tests made of various brands of cement during the year 1910. There has been carried on in the cement laboratory for some time various series of long-time tests on many brands of cement. These tests have been carried on for the last three years, and show some interesting results. The chart furnished with the report, however, embodies only the tests made during the year 1910. The tests on some of these cements will be carried along for periods of from two to three years, and a continuation of this chart will be submitted for the year 1911.

Maintenance of Sewers, Receiving Basins, Drains, etc.

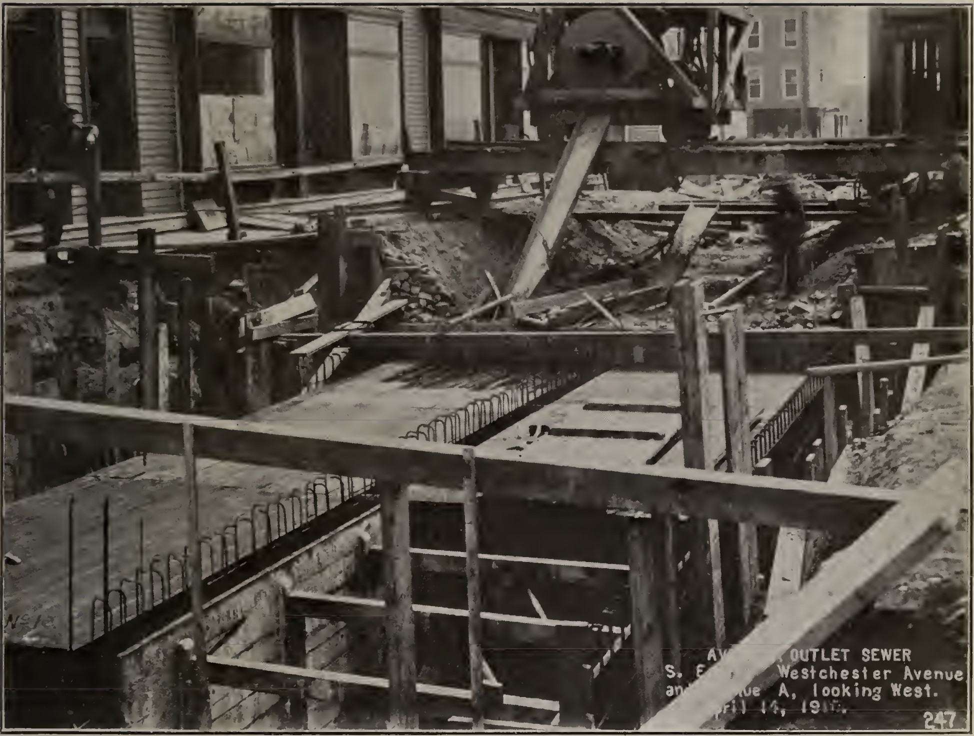
The cost of maintenance of sewers, receiving basins, drains, etc., in the Borough of The Bronx has been materially reduced during the year.

The labor employed for maintenance during the last week of the year 1909 represented a weekly payroll of $2,310, and the labor employed during the last week of the year 1910 represented a weekly payroll of $1,503.44.

There was saved during the year 1910 from the appropriation granted the Bureau of Sewers for Maintenance, including Cleaning and Repairs, in the Borough of The Bronx, the sum of $14,414.90.

During the year 1909 there were 336,615 linear feet of pipe sewers cleaned at an average cost of 2.5 cents per linear foot. During the year 1910 there were 762,527 linear feet of pipe sewers cleaned at an average cost of 1.9 cents per linear foot.

During the year 1909 there were 14,446 linear feet of stone drains and culverts cleaned at an average cost of 21.7 cents per linear foot. During the year 1910 there were 29,131 linear feet of stone drains and culverts cleaned at an average cost of 12.9 cents per linear foot.



Avenue A Outlet Sewer.
S. E. Cor. Westchester Avenue and Avenue A, Looking West.

During the year 1909 there were 3,571 receiving basins cleaned, at an average of $4.60 per basin. During the year 1910 there were 7,525 receiving basins cleaned at an average cost of $3.57 per basin. This average cost does not represent the present cost of cleaning receiving basins, which has been reduced from an average cost of $3.83 in January, 1910, to an average cost in December, 1910, of $2.84, making a saving of practically $1 per basin.

Respectfully submitted, JOSIAH H. FITCH, Engineer of Sewers.

Dated, New York, January 20, 1911.

Engineer of Highways.

February 18, 1911.

Mr. R. H. Gillespie, *Chief Engineer:*

Sir—I herewith submit annual report for the year ending December 31, 1910, containing the usual compilations, calculations and figures, in relation to the work done in this Borough under the supervision of this Bureau. In addition to the information above mentioned, I desire to call attention to various constructions where work of special interest or extent is or has been in progress during the year.

Castle Hill avenue, regulating, grading, etc., from Walker avenue to the Public place at its southerly extremity, was let, but work was not advanced until 1910. The estimated cost of the contract was about $76,000, and during the season nearly all of the regulating, grading, etc., has been completed and most of the bluestone put in place. Owing to difficulty that the contractor experienced in obtaining bluestone in the latter part of 1910, a portion of the same will not be laid until early in 1911. The progress made in the regulating and grading, and the effort to complete the laying of the bluestone, have left this street in a very badly upset condition for the entire length of the improvement, but this should be completed and placed in good condition in the early part of the coming year.

The improvement of E. 180th street, regulating, grading, etc., from Bronx River to West Farms road presented a problem between Van Nest avenue and the railroad bridge, which caused some annoyance owing to the necessity for building a retaining wall, a portion of which was about 30 feet in height and the whole of the same immediately in front of a wood-working establishment where considerable business was transacted. No investigation had been made of the subsurface conditions where the wall was to be built, as the mill mentioned extended over that portion. Shortly after the contract was ordered ahead and before a determination of how the wall should be built was made, the mill was burned down. The removal of this structure gave an opportunity to make a careful examination of the bottom upon which the wall was to rest, and indicated that a proper foundation existed a short distance below the surface, so that the base of the wall was widened enough to reduce the pressure per square foot within safe limits, and a thoroughly bonded dry rubble wall composed of very large stone was constructed. There seems to be no occasion for apprehension that this will move to any extent.

The repaving of a portion of the Melrose district by taking up the granite blocks existing, redressing the same, and replacing them upon a foundation of concrete, has been satisfactorily completed, and the indications point to a very satisfactory and smooth stone block pavement.

Where the surface of the granite pavement is rough and requires relaying and old blocks are used, the expenditure of an amount necessary to redress the same so as to give close joints, will result in an economical use of many of the blocks. A substitution of granite curb in place of bluestone has been made under this contract, and the result is quite satisfactory.

The paving of Boscobel avenue from Jerome avenue to Washington Bridge with asphalt blocks has opened another crosstown street to traffic and furnished a much needed thoroughfare which will be greatly appreciated.

The construction of a concrete and stone bridge over the Bronx River at E. 180th street, in place of the old steel bridge formerly occupying a part of the same site, has been well advanced and will be completed in the early spring. This bridge has concrete abutments with granite facing stones, and a concrete arch between the same. The wing walls and abutments are random ashlar with dressed quoins and stone parapet and coping. This bridge will furnish a much needed street for traffic, much wider than the bridge formerly existing, built of a material the maintenance of which will be inexpensive.

The most interesting piece of construction which has been in progress during the year is the reinforced concrete bridge on Jerome avenue, crossing Mosholu

Parkway. The object of its construction was to provide a passage on the park drive without necessitating the crossing of Jerome avenue and the trolley tracks there laid.

This bridge, consisting of a central five centred arch over the roadway, with a semi-circular arch over either sidewalk, is well advanced, and will be completed early in the coming season. The administration has been very fortunate in having as a contractor on this work one who has an artistic appreciation of the same, and is willing to work in harmony with the Engineers in carrying out the design.

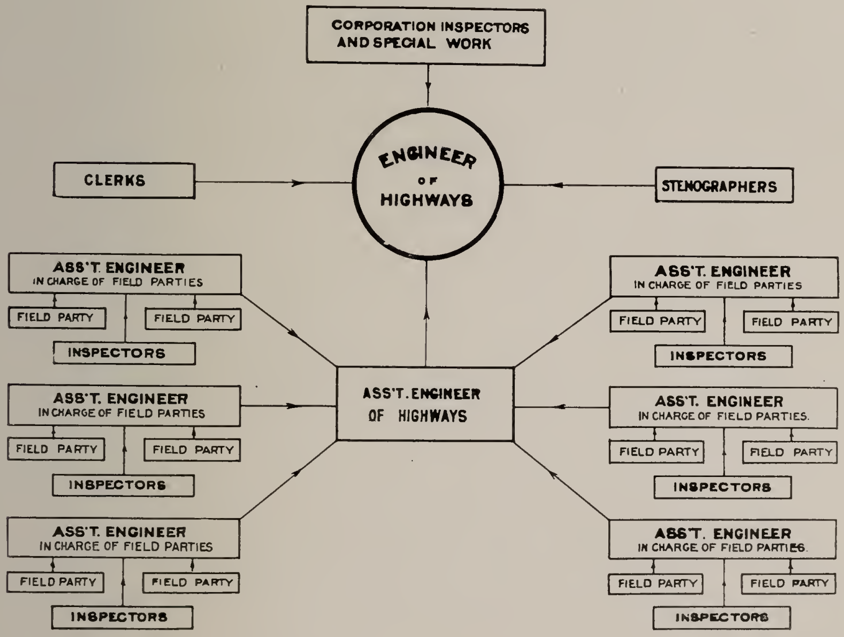
The amount of work done during the past year does not figure into as many dollars as in some of the past years, but represents a goodly sum, viz.: Payments of all kinds (70 per cent., retained, payments on acceptance and finals) actually certified during the year amounting to $1,517,384.69.

The number of contracts in force during the year is embodied in the report. The comparison of the cost of completed works for the year, with the estimated cost of the same, based upon the Engineer's quantities and the contractor's bid prices, shows that the entire cost exceeds the estimated cost by about 1¾ per cent., notwithstanding the fact that on two contracts adjoining the parks the cost of the same was increased 40½ per cent. and 18.4 per cent. respectively on account of walls which were required by the Department of Public Parks to be built.

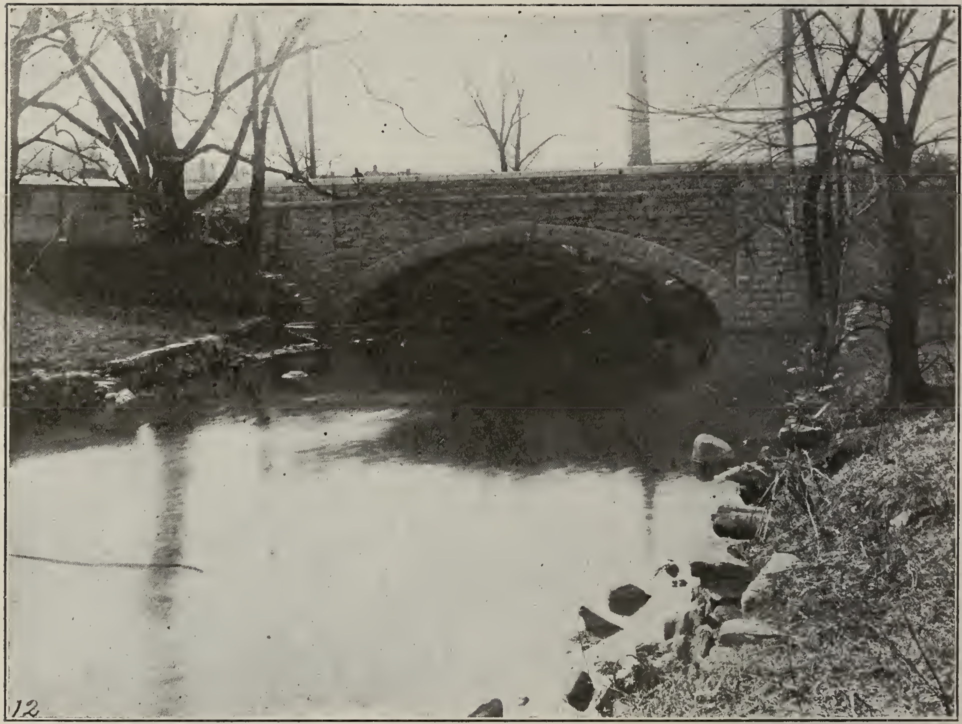
I submit with this, various photographs of works under construction or completed, together with chart showing graphically the ratio of permanent pavement mileage from the year 1902 to 1910 inclusive.

Respectfully, S. C. THOMPSON, Engineer of Highways.

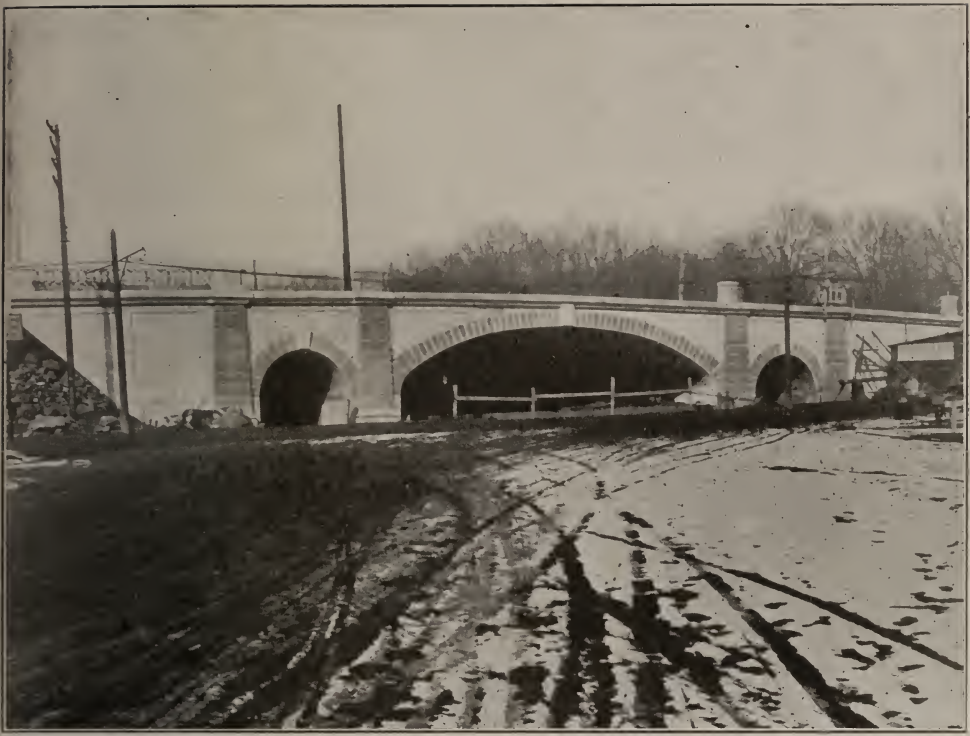
ORGANIZATION.


CORPORATION INSPECTORS AND SPECIAL WORK
ENGINEER OF HIGHWAYS
CLERKS
STENOGRAPHERS
ASS'T. ENGINEER IN CHARGE OF FIELD PARTIES
FIELD PARTY
FIELD PARTY
INSPECTORS
ASS'T. ENGINEER OF HIGHWAYS

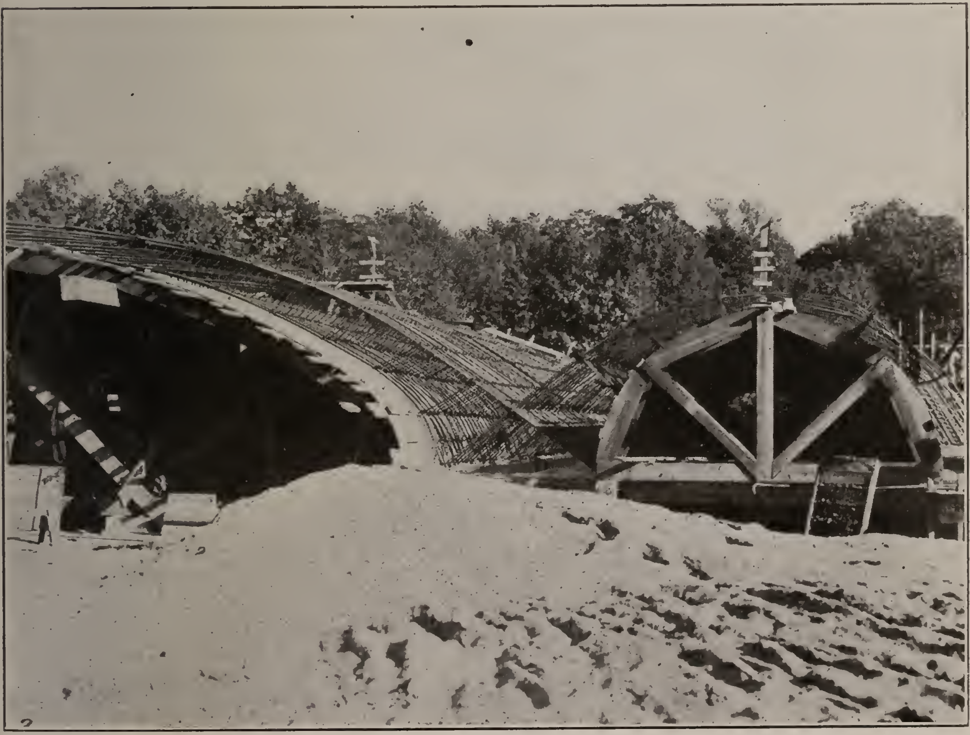
BUREAU OF HIGHWAYS.



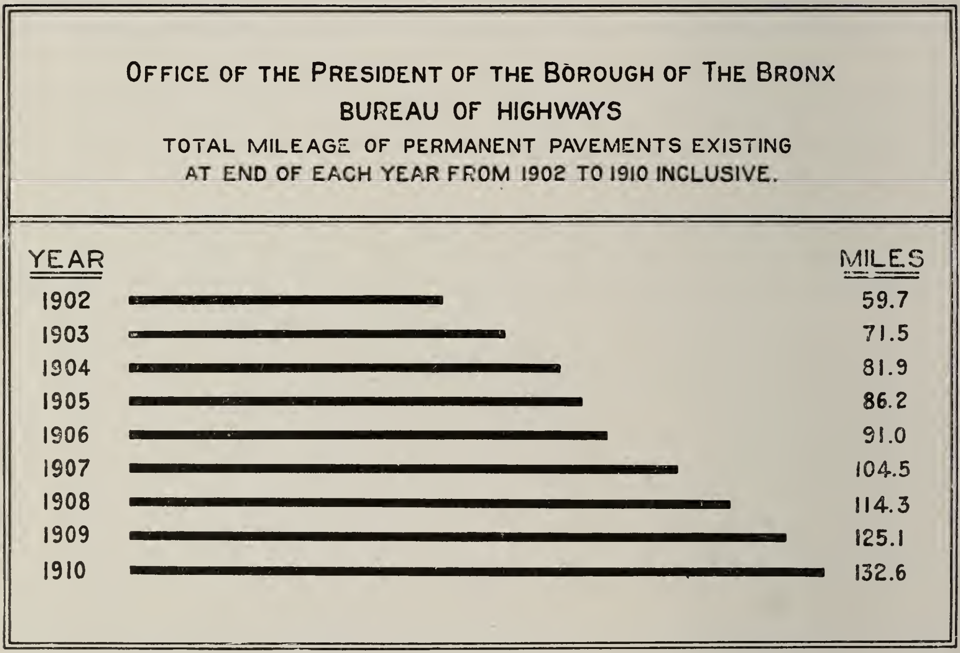
Bridge Over Bronx River at 180th Street, Looking South.



Arch Over Mosholu Parkway at Jerome Avenue.



Steel Reinforcement for Arch Over Mosholu Parkway.



OFFICE OF THE PRESIDENT OF THE BOROUGH OF THE BRONX
BUREAU OF HIGHWAYS
TOTAL MILEAGE OF PERMANENT PAVEMENTS EXISTING AT END OF EACH YEAR FROM 1902 TO 1910 INCLUSIVE.

Relative to Construction.

	Trap.	Medina Block	Granite.	Sheet Asphalt.	Block Asphalt.	Wood Block Pavement.	Brick.	Iron Slag.	Total.
Total mileage paved on December 31, 1910..................	0.488	0.282	38.404	38.737	48.991	3.397	0.741	1.545	132.585
Total mileage paved on January 1, 1910......................	1.088	0.282	37.313	37.788	42.929	3.397	0.741	1.545	125.083
Total mileage paved during year 1910......................	0.600	....	1.091	0.949	6.062	....	....	....	7.502

In Detail.

Asphalt Block.	Linear Feet.	Miles.
Mosholu Parkway South, from Webster avenue to Briggs avenue	1,629.2	0.310
Anna place, from Webster avenue to Brook avenue.............	199.3	0.040
Arthur avenue, from East 175th street to Tremont avenue......	1,032.37	0.200
Tinton avenue, from East 152d street to Westchester avenue....	849.5	0.161
Hoe avenue, from Freeman street to East 172d street..........	1,371.8	0.260
Elsmere place, from Marmion avenue to Southern boulevard....	487.5	0.092
East 136th street, from Alexander avenue to Willis avenue......	637.2	0.120
Crotona Park East, from Crotona Park South to Southern Boulevard	2,903.9	0.550
East 170th street, from Charlotte street to Wilkins avenue......	308.6	0.058
Jennings street, from Stebbins avenue to West Farms road......	790.0	0.150
Brook avenue, from Webster avenue to Wendover avenue......	3,990.0	0.755
Walker avenue, from Unionport road to Westchester avenue....	5,000.0	0.947
Concord avenue, from East 149th street to East 152d street......	971.4	0.184
Vyse avenue, from Home street to East 172d street............	1,717.0	0.325
Boscobel avenue, from Jerome avenue to Washington Bridge....	1,415.0	0.275
Tinton avenue, from East 149th street to Fox street............	246.7	0.047
East 150th street, from Robbins avenue to Prospect avenue......	1,081.7	0.204
Wilkins avenue, from Intervale avenue to Southern boulevard..	521.1	0.099
East 172d street, from 3d avenue to Park avenue...............	716.3	0.136
St. Pauls place, from Webster avenue to Fulton avenue..........	1,298.8	0.250
Grote street, from 182d street to Southern boulevard...........	1,277.38	0.242
Park avenue, West, from 175th street to 178th street...........	456.0	0.085
164th street, from Prospect avenue to Stebbins avenue..........	270.8	0.051
Grant avenue, from 161st street to 162d street..................	357.6	0.068
College avenue, from 165th street to 166th street...............	453.7	0.086
Daly avenue, from 176th street to Tremont avenue.............	859.1	0.163
East 159th street, from Brook avenue to St. Anns avenue......	306.6	0.058
Oakland place, from Belmont avenue to Prospect avenue........	866.9	0.145
Increase	32,015.45	6.062

Sheet Asphalt.	Linear Feet.	Miles.
East 156th street, New York, New Haven and Hartford Railroad Bridge...............	279.5	0.053
Whitlock avenue, from Longwood avenue to Tiffany street	933.6	0.177
Beck street, from Longwood to Intervale avenues	689.6	0.130
Wendover avenue, from Washington to Park avenues	300.7	0.057
East 140th street, from 3d to Morris avenues, etc.	580.0	0.110
East 160th street, from Washington to Elton avenues	269.9	0.051
East 161st street, from Prospect to Union avenues	337.7	0.064
Private permit, Barretto street, Fox street, Simpson street	1,066.5	0.202
East 167th street, from Union to Prospect avenues	348.6	0.066
East 187th street, from Ryer to Valentine avenues	210.4	0.039
Increase.......................	5,016.5	0.949

Granite Block Laid.	Linear Feet.	Miles.	Linear Feet.	Miles.
Crotona Park East, from Crotona Park South to Southern boulevard	321.6	0.061		
Jennings street, from Stebbins avenue to West Farms road	1,526.2	0.289		
W. 165th street, from Lind to Woodycrest avenues	780.8	0.135		
Park Avenue East, from 156th street to 161st street	1,397.6	0.265		
East 151st street, East 155th street, East 157th street, etc.	9,609.3	1.819		
Brook avenue, from Westchester avenue to 156th street	1,048.0	0.198		
Longwood avenue and Tiffany street, from Southern boulevard to East River	338.1	0.064		
Tremont avenue, from Jerome avenue to Concourse	544.4	0.103		
East 187th street, from Concourse to Ryer avenue	93.5	0.011		
			15,659.5	2.945
Granite Blocks, Removed, Relaid or Replaced with Other Pavements.				
East 160th street, from Washington to Elton avenues	269.9	0.051		
East 151st street, East 155th street, East 157th street, etc.	7,062.6	1.340		
Brook avenue, from Westchester avenue to 156th street	1,048.0	0.198		
Park Avenue East, from 156th street to 161st street	1,397.6	0.265		
			9,778.1	1.854
Net increase			5,881.4	1.091
Trap Block, Replaced With Other Pavements.				
East 151st street, East 155th street, East 157th street, etc.	2,546.7	0.480		
East 136th street, from Alexander avenue to Willis avenue	637.2	0.120		
Decrease			3,183.9	0.600

Title of Work.	Kind of Paving.	Laid.		Remarks
		Yards.	Linear Feet.	
Mosholu Parkway South, from Webster to Briggs avenue	Asphalt block	5,592.7	1,629.2	Complete; laid on concrete.
Anna place, from Brook avenue to Webster avenue	Asphalt block	528.1	199.3	Complete; laid on concrete.
Arthur avenue, from 175th to Tremont avenue	Asphalt block	3,455.0	1,032.37	Complete; laid on concrete.
Tinton avenue, from 152d street to Westchester avenue	Asphalt block	2,889.0	849.5	Complete; laid on concrete.
Hoe avenue, from Freeman street to E. 172d street	Asphalt block	4,557.6	1,371.8	Complete; laid on concrete.
Elsmere place, from Marmion avenue to Southern Boulevard	Asphalt block	1,339.7	487.5	Complete; laid on concrete.
East 136th street, from Alexander avenue to Willis avenue	Asphalt block	2,123.8	637.2	Complete; laid on concrete.
Crotona Park East, from Crotona Park South to Southern Boulevard	Asphalt block	9,664.9	2,903.9	Complete; laid on concrete.
East 170th street, from Charlotte street to Wilkins avenue	Asphalt block	720.5	308.6	Complete; laid on concrete.
Jennings street, from Stebbins avenue to West Farms road	Asphalt block	2,710.6	790.0	Complete; laid on concrete.
Brook avenue, from Webster avenue to Wendover avenue	Asphalt block	13,737.2	3,990.0	Complete; laid on concrete.
Walker avenue, from Unionport road to Westchester avenue	Asphalt block	35,300.0	5,000.0	In progress; laid on concrete.
Concord avenue, from East 149th street to East 152d street	Asphalt block	3,322.7	971.4	Complete; laid on concrete.
Vyse avenue, from Home street to E. 172d street	Asphalt block	5,658.7	1,717.0	Complete; laid on concrete.
Boscobel avenue, from Jerome avenue to Washington Bridge	Asphalt block	9,800.0	1,415.0	Complete; laid on concrete.
Tinton avenue, from 149th street to Fox street	Asphalt block	809.7	246.7	Complete; laid on concrete.
East 150th street, from Robbins avenue to Prospect avenue	Asphalt block	2,829.1	1,081.7	Complete; laid on concrete.
Wilkins avenue, from Southern Boulevard to Intervale avenue	Asphalt block	3,433.0	521.1	Complete; laid on concrete.
East 172d street, from 3d to Park avenues	Asphalt block	2,300.0	716.3	Complete; laid on concrete.
St. Paul's place, from Webster avenue to Fulton avenue	Asphalt block	5,586.0	1,298.8	Complete; laid on concrete.
Grote street, from 182d street to Southern Boulevard	Asphalt block	4,367.11	1,277.38	Complete; laid on concrete.
Park Avenue West, from East 175th street to East 178th street	Asphalt block	1,805.6	456.0	Complete; laid on concrete.
164th street, from Prospect avenue to Stebbins avenue	Asphalt block	717.3	270.8	Complete; laid on concrete.
Grant avenue, from 161st street to 162d street	Asphalt block	1,213.6	357.6	Complete; laid on concrete.
College avenue, from 165th street to 166th street	Asphalt block	1,499.9	453.7	Complete; laid on concrete.
Daly avenue, from 176th street to Tremont avenue	Asphalt block	2,851.6	859.1	Complete; laid on concrete.
East 159th street, from Brook avenue to St. Ann's avenue	Asphalt block	807.8	306.6	Complete; laid on concrete.
Oakland place, from Belmont avenue to Prospect avenue	Asphalt block	2,282.4	866.9	Complete; laid on concrete.
East 167th street, Transverse road	Asphalt block	1,390.2	......	Complete; laid on concrete.
East 180th street, Bridge over Bronx River	Asphalt block	400.0	......	In progress; laid on concrete.

East 156th street, N. Y., N. H. and H. R. R. bridge	Sheet asphalt	934.2	279.5	Complete; laid on concrete.
Whitlock avenue, from Longwood avenue to Tiffany street	Sheet asphalt	3,828.7	933.6	Complete; laid on concrete.
Beck street, from Longwood avenue to Intervale avenue	Sheet asphalt	2,284.2	689.6	Complete; laid on concrete.
Wendover avenue, from Washington avenue to Park avenue	Sheet asphalt	2,004.4	300.7	Complete; laid on concrete.
East 140th street, from 3d avenue to Morris avenue, etc	Sheet asphalt	1,500.0	580.0	Complete; laid on concrete.
East 160th street, from Washington avenue to Elton avenue	Sheet asphalt	719.8	269.9	Complete; relaid on concrete.
East 161st street, from Prospect avenue to Union avenue	Sheet asphalt	900.7	337.7	Complete; laid on concrete.
Barretto street, Fox street, and Simpson street—private permit	Sheet asphalt	3,532.2	1,066.5	Complete; laid on concrete.
East 167th street, from Union avenue to Prospect avenue	Sheet asphalt	909.9	348.6	Complete; laid on concrete.
East 187th street, from Concourse to Valentine avenue	Sheet asphalt	701.3	210.4	Complete; laid on concrete.
Jerome avenue, from Macombs Dam Bridge to 162d street	Sheet asphalt	1,048.0	......	In progress; laid on concrete.
Crotona Park East, from Crotona Park South to Southern Boulevard	Granite block	1,051.6	321.6	Complete; laid on concrete.
Jennings street, from Stebbins avenue to West Farms road	Granite block	5,109.9	1,526.2	Complete; laid on sand.
West 165th street, from Lind avenue to Woodycrest avenue	Granite block	2,600.0	780.8	Complete; laid on sand.
Park Avenue East, from East 156th street to East 161st street	Granite block	5,241.1	1,397.6	Complete; relaid on concrete.
East 151st street, East 155th street, East 157th street, etc	Granite block	32,255.6	9,609.3	Complete; relaid on concrete.
Brook avenue, from Westchester avenue to 156th street	Granite block	5,350.0	1,048.0	Complete; relaid on concrete.
Longwood avenue and Tiffany street, from Southern Boulevard to East River	Granite block	12,375.3	338.1	Complete; laid on sand.
Tremont avenue, from Jerome avenue to Concourse	Granite block	2,583.8	544.4	Complete; laid on concrete.
East 187th street, from Concourse to Valentine avenue	Granite block	317.0	93.5	Complete; laid on concrete.

Total mileage of each kind, December 31, 1910:

Kind.	Miles.
Trap block	0.488
Granite block	38.404
Sheet asphalt	38.737
Block asphalt	48.991
Wood block	3.397
Brick pavement	0.741
Medina block pavement	0.282
Iron slag block pavement	1.545
	132.585

In addition to the foregoing mileage, there is about 6 miles uncompleted work (paving) under contract, December 31, 1910.

Total yardage and miles of streets paved and repaved from 1874 to January 1, 1911:

Kind.	Yards.	Miles.
Trap block	349,140.70	16.636
Granite block	1,340,996.79	52.677
Sheet asphalt	950,760.62	40.311
Block asphalt	1,151,906.21	48.991
Wood block	92,833.00	3.397
Brick pavement	40,795.20	1.474
Medina block pavement	3,953.80	0.282
Iron slag block pavement	31,807.20	1.545
		165.313

Total yardage and miles of streets and avenues flagged in the Borough of The Bronx:

	Square Yards.	Miles.
To January 1, 1910	1,281,908.8	448.7
Flagged during year	37,465.3	15.9
Total to January 1, 1911	1,319,374.1	464.6

Regulating and grading contracts completed during 1910:	Linear Feet.
Monterey avenue, from 180th street to Quarry road	256.70
171st street, from Webster avenue to Clay avenue	103.14
185th street, Prospect avenue to Southern boulevard	299.75
Baychester avenue, from White Plains road to Boston road	9,000.00
Briggs avenue, from White Plains road to Baychester avenue	12,239.00
City Island avenue, from north of Elizabeth street to Long Island Sound	7,120.00
Rosewood avenue, from White Plains road to Cruger avenue	170.00
Seddon street, from St. Raymonds avenue to West Farms road	1,156.40
E. 161st street, from 3d avenue to Brook avenue	271.01
DeKalb avenue, from W. 208th street to Gun Hill road	856.50
Burnett place, from Garrison avenue to Tiffany street	616.75
Belmont street, from Webster avenue to Clay avenue	172.41
Longfellow avenue, from Lafayette avenue to N. Y. N. H. & H. R. R.	1,753.55
Gun Hill road, from Mosholu parkway North to Jerome avenue	1,157.90
Cannon place, from Giles place to W. 238th street	1,138.00
Hawkstone street, from Walton avenue to Concourse	299.38
Exterior street, from 149th street to Jerome avenue	3,413.50
Edgewater road, from Garrison avenue to Seneca avenue	678.92
Astor avenue, from Olinville avenue to White Plains avenue	200.00
Fox street, from 156th street to Longwood avenue	560.00
Seneca avenue, from Whittier street to 100 feet east of Edgewater road	454.36
Commonwealth avenue, from West Farms road to Westchester avenue	2,836.53
Lyons avenue, from Zerega avenue to Castle Hill avenue	1,351.66
Wayne avenue, from Reservoir Oval West to Gun Hill road	521.95
Mosholu Parkway North, from Perry avenue to Jerome avenue	3,171.52
Wales avenue, from 141st street to St. Josephs street	978.46
142d street, from Powers avenue to Southern boulevard	869.41
Whitlock avenue, from Leggett avenue to Longwood avenue	1,172.06
Kingsbridge avenue, from 230th street to Broadway	3,077.00
E. 222d street, from Bronxwood avenue to Carpenter avenue	2,420.00
Powers avenue, from 141st street to St. Marys street	647.45
Merriam avenue, from Ogden avenue to Aqueduct avenue	1,670.00
Sheridan avenue, from 165th street to 169th street	2,032.83
	62,666.14
	or 11.87 miles.

	Miles.
Completed to January 1, 1910	239.99
Completed during year, 1910	11.87
Completed January 1, 1911	251,86

Macadam Pavement—Assessment Work, laid from January 1, 1901, to January 1, 1911.

		Kind.	Date of Acceptance.	Yardage.	Linear feet.	Miles.
176th street, from Jerome avenue to Tremont avenue		Macadam	Feb. 19, 1901	9,174.3	2,641.26	
Ritter place, from Union avenue to Prospect avenue		Telford	Jan. 19, 1901	1,168.5	438.2	
Gun Hill road, from Jerome avenue to Bronx River		Macadam	Jan. 18, 1902	21,189.1	3,935.8	
Mt. Hope place, from Jerome avenue to Anthony avenue		Telford	Nov. 29, 1902	7,253.8	2,098.45	
180th street, from 3d avenue to Bronx River		Macadam	Dec. 5, 1902	26,649.9	5,608.9	
Summit avenue, from 161st street to 166th street		Telford	Jan. 9, 1903	5,273.5	1,950.0	
153d street viaduct approach		Macadam	Mar. 18, 1903	1,890.6	731.0	
Hoffman street, from Belmont place to 191st street		Telford	Aug. 13, 1903	7,468.0	2,230.0	
East 164th street, from Summit avenue to Anderson avenue		Telford	Oct. 30, 1903	2,243.5	824.73	
East 175th street, from Third avenue to Southern boulevard		Telford	Dec. 4, 1903	11,898.4	3,476.19	
Morris avenue, from East 176th street to Tremont avenue		Macadam	Nov. 30, 1903	3,177.6	1,041.81	
Monroe avenue, from Belmont street to Tremont avenue		Macadam	Dec. 5, 1903	6,500.5	2,252.0	
Oak Tree place, from LaFontaine avenue to Hughes avenue		Macadam	Oct. 26, 1903	1,350.1	506.3	
Arthur avenue, from Tremont avenue to Pelham avenue		Telford	Jan. 2, 1904	22,199.8	4,915.2	
East 183d street, from Arthur avenue to Southern boulevard		Telford	Apr. 20, 1904	7,415.2	2,094.7	
Adams place, from E. 182d street to Crescent avenue		Macadam	Sept. 17, 1904	1,466.0	549.7	
Belmont avenue, from Tremont avenue to lands of St. Johns College		Macadam	Oct. 29, 1904	15,173.1	5,272.6	
Crescent avenue, from Arthur avenue to East 182d street		Macadam	Nov. 9, 1904	5,897.1	1,150.0	
Webster avenue, from Mosholu parkway to Gun Hill road		Telford	Dec. 3, 1904	28,347.5	4,058.0	
Freeman street, from Southern boulevard to Bronx River		Telford	Dec. 3, 1904	6,404.8	1,880.4	
Webster avenue, from Southern boulevard to Mosholu parkway		Tel. and Mac.	June 29, 1905	9,164.6	1,356.0	
Nelson avenue, from West 164th street to Boscobel avenue		Telford	Aug. 1, 1905	12,129.0	3,732.0	
Webster avenue, from Gun Hill road to City line		Tel. and Mac.	Mar. 9, 1906	50,211.9	8,627.2	
Laid during 1907, 1908, 1909 on Grand Boulevard and Concourse and transverse roads in connection therewith		Macadam		174,855.5	51,918.00	
Laid to January 1, 1910,				438,502.3	113,288.44	21.447
167th street transverse road		Macadam	Jan. 22, 1910	1,196.4	400.00	0.075
				439,698.7	113,688.44	21.522
Macadam removed—	Square Yards.	Linear Feet.	Miles.			
Intersections of East 189th street with Hoffman street, Arthur avenue and Belmont avenue	618.9	123.5	0.023			
Summit avenue, from 161st street to 165th street	4,057.3	1,498.4	0.284	4,676.2	1,621.90	0.307
Laid to January 1, 1911				435,022.5	112,066.54	21.215

Square Yards of Pavement Laid and Relaid, and Net Increase and Decrease from 1893.

Trap Block.

Year.	Laid on January 1.	Laid During Year.	Repaved.	Increase.	Decrease.
1894..........	317,628.2	13,822.7	66,651.2	....	52,828.5
1895..........	264,799.7	3,502.5	22,000.1	....	18,497.5
1896..........	246,302.2	12,876.3	2,301.5	10,574.8	....
1897..........	256,877.0	....	75,097.9	....	75,097.9
1898..........	181,779.1	1,821.0	18,035.2	....	16,214.2
1899..........	165,564.9	....	6,849.7	....	6,849.7
1900..........	158,715.2	....	20,075.4	....	20,075.4
1901..........	138,639.8	....	9,320.8	....	9,320.8
1902..........	129,319.0	....	488.7	......	488.7
1903..........	128,830.3	1,330.0	17,251.9	....	15,921.9
1904..........	112,908.4	....	9,670.1	....	9,670.1
1905..........	103,238.3	....	33,341.1	....	33,341.1
1906..........	69,897.2	....	5,843.7	....	5,843.7
1907..........	64,053.5	....	....	....	....
1908..........	64,053.5	....	3,735.2	....	3,735.2
1909..........	60,318.3	....	672.0	....	672.0
1910*...... ..	59,646.3	....	7,988.1	....	7,988.1
1911..........	51,658.2	....	....	....	....

*East 136th street, E. 151st street, E. 159th street.

Granite Block.

Year.	Laid on January 1.	Laid During Year.	Repaved.	Increase.	Decrease.
1894..........	233,647.7	124,170.0	....	124,170.0	....
1895..........	357,817.9	107,805.2	....	107,805.2	....
1896..........	465,623.1	172,175.0	712.0	171,363.0	....
1897..........	636,986.1	135,959.1	47,568.1	88,391.0	....
1898..........	725,377.1	40,707.4	6,491.6	34,215.8	....
1899..........	759,592.9	8,947.0	....	8,947.0	....
1900..........	768,539.9	11,434.4	22,930.9	....	11,496.5
1901..........	757,045.4	34,791.7	18,817.3	15,974.4	....
1902..........	773,017.8	14,284.0	31,942.5	....	17,658.5
1903..........	755,359.3	116,822.9	75,985.3	40,837.6	....
1904..........	795,196.9	57,673.2	22,363.4	33,309.8	....
1905..........	831,506.7	62,235.3	35,670.6	28,564.7	....
1906..........	858,071.4	19,222.0	12,929.2	6,293.6	....
1907..........	864,365.0	20,345.2	5,048.2	15,297.0	3,299.4
1908..........	876,362.6	53,578.99	25,504.3	28,074.69	....
1909..........	904,437.29	61,946.5	56,689.0	5,257.5	....
1910*.........	909,694.79	71,840.8	48,523.0	23,317.8	....
1911..........	933,012.59	....	....	....	....

*Granite Laid—Crotona Park East, Jennings street, West 165th street, Park Avenue East, East 151st street, etc., Brook avenue, Longwood avenue, Tiffany street (in part), Tremont avenue, East 187th street.

Removed, Relaid or Replaced—East 160th street, East 151st street, Brook avenue, Park Avenue East.

Sheet Asphalt.

Year.	Laid on January 1.	Laid During Year.	Repaved.	Increase.	Decrease.
1896..........	22,000.00	2,430.5	....	2,430.5	....
1897...	24,430.5	128,287.1	....	128,287.1	....
1898..........	152,717.6	57,206.6	....	57,206.6	....
1899..........	209,924.2	17,210.8	....	17,210.8	....
1900..........	227,135.0	76,308.4	1,764.8	74,543.6	....
1901..........	301,678.6	72,292.6	....	72,292.6	....
1902..........	373,971.2	80,328.9	....	80,328.9	....
1903..........	454,300.1	192,852.2	780.0	192,072.2	....
1904..........	646,372.3	97,201.1	....	97,201.1	....
1905..........	743,573.4	50,738.5	....	50,738.5	....
1906..........	794,311.9	35,654.5	....	35,654.5	....
1907..........	829,966.4	50,057.0	26,389.7	23,667.3	....
1908..........	853,633.7	16,014.9	2,065.3	13,949.6	....

previous to 1910, see annual report of December 31, 1909.

For names of streets and avenues which were paved and repaved in the years

1909..........	867,583.3	35,554.0	31,222.2	4,331.8	....
1910*.........	871,915.1	19,168.3	....	19,168.3	....

*East 156th street, Whitlock avenue, Beck street, Wendover avenue, East 140th street, East 160th street, East 161st street, P. P. Barretto street, P. P. Fox street, P. P. Simpson street, East 167th street, East 187th street.

Asphalt Block Pavement.

Year.	Laid on January 1.	Laid During Year.	Repaved.	Increase.	Decrease.
1901..........	....	6,644.7	....	6,644.7	....
1902..........	6,644.7	....	....	....	....
1903..........	6,644.7	97,483.9	....	97,483.9	....
1904..........	104,128.6	129,990.8	....	129,990.8	....
1905..........	234,119.4	80,515.3	....	80,515.3	....
1906..........	314,634.7	79,408.6	....	79,408.6	....
1997..........	394,043.3	220,230.16	....	220,230.16	....
1908..........	614,273.46	164,877.75	....	164,877.75	....
1909..........	779,151.21	239,061.20	....	239,061.20	....
1910*.........	1,018,212.41	133,693.8	....	133,693.8	....
1911..........	1,151,906.21	....	....	....	....

*Mosholu Parkway South, Anna place, Arthur avenue, Tinton avenue, Hoe avenue, Elsmere place, 136th street, Crotona Park East, 170th street, Jennings street, Brook avenue, Walker avenue (in part), Concord avenue, Vyse avenue, Boscobel avenue, Tinton avenue, East 150th street, Wilkins avenue, East 172d street, St. Pauls place, Grote street, Park Avenue West, 164th street, Grant avenue, College avenue, Daly avenue, East 159th street, Oakland place.

Brick Pavement.

Year.	Laid on January 1.	Laid During Year.	Repaved.	Increase.	Decrease.
1896	1,122.7	13,750.0	....	13,750.0	....
1897	14,872.7	9,678.9	....	9,678.9	....
1898	24,551.6	10,273.0	....	10,273.0	....
1899	34,824.6	....	....	....	....
1900	34,824.6	....	....	....	....
1901	34,824.6	5,560.0	....	5,560.0	....
1902	40,384.6	....	....	....	....
1903	40,384.6	2,033.6	2,033.6	....	....
1904	40,384.6	389.9	389.9	....	....
1905	40,384.6	....	....	....	....
1906	40,384.6	....	....	....	....
1907	40,384.6	....	....	....	....
1908	40,384.6	2,560.3	23,907.1	....	21,346 8
1909	19,037.8	....	3,254.0	....	3,254.0
1910	15,783.8	....	....	....	....
1911	15,783.8	....	....	....	....
Wood Block Pavement.					
1904	....	8,101.6	....	8,101.6	....
1905	8,101.6	....	....	....	....
1906	8,101.6	4,521.0	....	4,521.0	....
1907	12,622.6	56,320.6	....	56,320.6	....
1908	68,943.2	23,889.8	....	23,889.8	....
1909	92,833.0	....	....	....	....
1910	92,833.0	....	....	....	....
1911	92,833.0	....	....	....	....
Medina Block Pavement.					
1906	....	3,953.8	....	3,953.8	....
1907	3,953.8	....	....	....	....
1908	3,953.8	....	....	....	....
1909	3,953.8	....	....	....	....
1910	3,953.8	....	....	....	....
1911	3,953.8	....	....	....	....
Iron Slag Block Pavement.					
1907	....	5,902.1	....	5,902.1	....
1908	5,902.1	13,878.2	....	13,878.2	....
1909	19,780.3	12,026.9	....	12,026.9	....
1910	31,807.2	....	....	....	....
1911	31,807.2	....	....	....	....

For names of streets and avenues which were paved and repaved in the years previous to 1910, see annual report of December 31, 1909.

Square Yards and Miles of Different Pavements Laid Each Year, and Total Miles of Streets Paved at End of Each Year.

Year.	Trap Block, Sq. Yds.	Miles.	Granite, Sq. Yds.	Miles.	Brick, Sq. Yds.	Miles.	Wood Block, Sq. Yds.	Miles.	Sheet Asphalt, Sq. Yds.	Miles.	Block Asphalt, Sq. Yds.	Miles.	Medina Block. Sq. Yds.	Miles.	Iron Slag Block, Sq. Yds.	Miles.	Total Paved Miles Each Year.	Miles at End of Year.
Prior to 1874....	29,150.0	1.0	....	......	....	......	......	......	....	......	....	......	......	......	....	......	1.0	1.0
1874....	....	......	....	......	....	......	......	......	....	......	....	......	......	......	....	......	......	1.0
1875....	14,085.0	0.49	....	......	....	......	......	......	....	......	....	......	......	......	....	......	0.49	1.49
1876....	45,960.0	1.04	....	......	....	......	......	......	....	......	....	......	......	......	....	......	1.04	2.53
1877....	....	......	....	......	....	......	......	......	....	......	....	......	......	......	....	......	......	2.53
1878....	....	......	....	......	....	......	......	......	....	......	....	......	......	......	....	......	......	2.53
1879....	....	......	....	......	....	......	......	......	....	......	....	......	......	......	....	......	......	2.53
1880....	....	......	....	......	....	......	......	......	....	......	....	......	......	......	....	......	......	2.53
1881....	....	......	....	......	....	......	......	......	....	......	....	......	......	......	....	......	......	2.53
1882....	....	......	....	......	....	......	......	......	....	......	....	......	......	......	....	......	......	2.53
1883....	18,037.0	0.58	....	......	....	......	......	......	....	......	....	......	......	......	....	......	0.58	3.11
1884....	25,105.0	1.21	....	......	....	......	......	......	....	......	....	......	......	......	....	......	1.21	4.32
1885....	20,486.3	0.86	....	......	....	......	......	......	....	......	....	......	......	......	....	......	0.86	5.18
1886....	....	......	833.3	0.06	....	......	......	......	....	......	....	......	......	......	....	......	0.06	5.24
1887....	4,373.0	0.13	....	......	....	......	......	......	....	......	....	......	......	......	....	......	0.13	5.37
1888....	14,385.0	0.40	10,575.0	0.27	....	......	......	......	....	......	....	......	......	......	....	......	0.67	6.04
1889....	15,203.9	0.79	30,860.0	1.39	....	......	......	......	....	......	....	......	......	......	....	......	2.18	8.22
1890....	41,629.4	2.39	8,210.0	0.30	....	......	......	......	....	......	....	......	......	......	....	......	2.69	10.91
1891....	35,125.0	2.25	64,376.0	1.74	....	......	......	......	....	......	....	......	......	......	....	......	3.99	14.90
1892....	21,437.7	1.34	63,904.5	2.58	....	......	......	......	....	......	....	......	......	......	....	......	3.92	18.82
1893....	32,640.9	2.04	54,889.9	2.79	....	......	......	......	....	......	....	......	......	......	....	......	4.83	23.65
1894....	13,822.7	0.89	124,170.2	5.53	....	......	......	......	....	......	....	......	......	......	....	......	6 42	27.82
1895....	3,502.5	0.25	107,805.2	3.73	....	......	......	......	22,000.0	0.72	....	......	......	......	....	......	4.71	31.81
1896....	12,876.3	0.80	172,075.0	6.77	13,750.0	0.57	......	......	2,430.52	0.10	....	......	......	......	....	......	8.24	40.05
1897....	....	......	135,959.1	5.87	9,678.9	0.22	......	......	128,287.10	4.55	....	......	......	......	....	......	10.64	46.30
1898....	1,321.0	0.166	34,215.8	0.884	10,273.0	0.285	......	......	57,206.60	1.458	....	......	......	......	....	......	2.793	50.627
1899....	....	......	8,947.0	0.178	....	......	......	......	17,210.8	0.90	....	......	......	......	....	......	1.078	51.316
1900....	....	......	11,434.4	0.56	....	......	......	......	74,543.6	3.373	....	......	......	......	....	......	3.933	53.195
1901....	....	......	34,791.7	1.568	5,560 0	0.316	......	......	72,292.6	2.995	....	......	......	......	....	......	4.879	57.097
1902....	....	......	14,284.0	0.821	....	......	......	......	80,328.9	3.44	....	......	......	......	....	......	4.261	59.718
1903....	....	......	116,822.9	4.441	....	......	......	......	192 072.2	8.665	97,483.9	4.197	......	......	....	......	17.303	71.461
1904....	....	......	57,673.2	2.197	....	......	8,101.6	0.46	97,201.1	4.018	129,990.8	5.210	......	......	....	......	11.885	81.876
1905....	....	......	62,235.3	1.829	....	......	......	......	50,738.5	1.999	80,515.3	3.695	......	......	....	......	7.523	86.219
1906....	....	......	19,222.8	0.711	....	......	4,521.0	0.125	35,654.5	1.592	79,408.6	3.023	3,953.8	0.282	....	......	5.733	90.980
1907....	....	......	20,345.2	0.831	....	......	56,320.6	1.733	50,057.0	1.956	220,230.16	9.880	......	......	5,902.1	0.251	14.651	104.549
1908....	....	......	53,578.99	2.274	1,533.3	0.083	23,889.8	1.079	16.014.9	1.702	171,522.45	6.963	......	......	13,878.2	0.628	12.729	114.250
1909....	....	......	61,946.5	2.408	....	......	......	......	35,554.0	1.894	239.061.20	9.961	......	......	12,026.9	0.666	14.929	125.083
1910....	....	......	71,840.8	2.945	....	......	......	......	19,168.3	0.949	133.693.80	6.062	......	......	....	......	9.956	132.585

Tabulation Showing Average of Prices and Bids During the Years 1906, 1907, 1908, 1909 *and* 1910 *on Various Contracts by the Successful Bidders.*

Kind of Work.	1906		1907		1908		1909		1910	
	No. of Bids Included in Average.	Average Price.	No. of Bids Included in Average.	Average Price.	No. of Bids Included in Average.	Average Price.	No. of Bids Included in Average.	Average Price.	No. of Bids Included in Average.	Average Price.
Earth excavation, cubic yards	52	$0 63	30	$0 54	18	$0 47	34	$0 46	22	$0 48
Rock excavation, cubic yards	51	1 22	30	1 52	20	1 44	32	1 35	20	1 06
Excavation, all kinds, cubic yards	8	90	6	50	5	70	8	64	5	28
Filling, cubic yards	59	11	32	12	22	15	41	15	25	15
New curb, linear feet	68	77½	42	81	58	87	69	83	67	82
Old curb, linear feet	26	29	41	38	35	30	31	31	48	32
New flag, square feet	60	26	29	24	22	23	42	24	27	23
Old flag, square feet	6	04½	3	05	7	06	11	03	4	02
New bridgestone, square feet	49	50	27	52	26	50	35	47	26	47
Old bridgestone, square feet	1	10	2	18	7	12	2	13½	7	11
Sheet asphalt, square yards	2	1 01½	6	1 46	3	1 62	8	1 27½	14	1 09
Block asphalt, square yards	19	1 80	30	1 79	30	1 77	23	1 99	24	1 77
New granite, square yards	6	2 64	4	2 48	14	2 63	6	2 86	7	2 25
Concrete, cubic yards	28	5 19	36	5 05	42	5 78	29	5 55½	44	5 38
Dry rubble masonry, cubic yards	46	1 52	31	1 28	22	1 48	34	1 69	22	1 47
Lumber, board measure, feet	11	21 91	7	32 14	8	25 63	11	22 36	7	13 00
Vitrified pipe, 6 inches diameter, linear feet	..	....	..	....	..	....	1	1 50	..	....
Vitrified pipe, 8 inches diameter, linear feet	1	1 50	..	....	1	1 00	1	75	..	....
Vitrified pipe, 12 inches diameter, linear feet	22	86	1	50	20	1 06	16	80	16	62
Vitrified pipe, 15 inches diameter, linear feet	2	2 75	..	....	4	2 31	3	1 97	2	1 25
Vitrified pipe, 18 inches diameter, linear feet	2	1 50	4	2 50	4	2 58	3	1 33	1	1 00
Vitrified pipe, 20 inches diameter, linear feet	..	....	1	2 50	1	3 00	2	1 37½	..	....
Vitrified pipe, 24 inches diameter, linear feet	1	5 00	1	2 00	2	2 75	1	1 90	1	2 50
Vitrified pipe, 10 inches diameter, linear feet	2	1 25	2	1 50	..	....	..	....	..	....
Vitrified pipe, 30 inches diameter, linear feet	..	....	1	2 50	..	....	..	....	..	....
Masonry in mortar, cubic yards	7	5 57	7	4 64	4	2 75	8	3 97½	3	3 17
Paved gutters, linear feet	2	1 13	2	1 00	1	90	..	....	..	....
Macadam, square yards	4	92	2	1 00	..	....	..	....	2	1 25
Brick masonry, cubic yards	3	14 00	1	20 00	3	5 38	..	....	..	....
Piles, linear feet	..	....	..	....	1	01	2	37½	..	....
Receiving basins	4	175 00	3	190 00	4	117 50	3	133 33	3	196 67

Iron and steel, pounds	4	048	2	.045	2	04	1	05	2	.045
Ornamental railing, linear feet	2	2 50	..	....	..	....	..	....	..	....
Gas pipe railing, linear feet	..	....	..	....	1	2 50	..	....	..	....
Granite coping and newels, cubic feet	6	3 72	3	3 13	2	3 05	1	2 90	..	....
Vitrified stoneware spurs	2	1 50	2	1 00	1	1 00	..	....	..	....
Gas main, 2 inches in diameter, linear feet	4	51	1	50	..	....	..	....	..	....
Lamp posts and lamps	4	53 75	1	40 00	..	....	..	....	..	....
Steel rods, pounds	1	10	1	05	2	.028	1	05	..	....
New iron railing, linear feet	4	1 54	1	1 50	1	1 75	1	1 00	..	....
Wood block pavement, square yards	1	2 00	10	2 38	..	....	..	....	1	2 48
Concrete, Class "A," cubic yards	4	10 25	3	7 83	3	8 00	2	8 00	..	....
Concrete, Class "B," cubic yards	4	6 12	2	6 00	1	5 00	2	6 75	..	....
Cinder foundation, cubic yards	2	7 50	2	10 00	..	....	..	....	..	....
Granolithic pavement, square yards	4	2 50	..	....	..	....	..	....	..	....
Inlets	1	30 00	1	15 00	..	....	..	....	..	....
Steel reinforcing bars, pounds	..	....	..	....	..	....	2	.045	..	....
Manholes	2	50 00	4	56 25	2	62 50	3	51 67	..	....
Cast-iron inlets, frames, etc., pounds	3	09	3	.074	2	.025	1	03	..	....
Medina pavement, square yards	1	2 80	..	....	1	1 00	..	....	..	....
Woven wire fabric, square feet	4	14	3	08	1	10	..	....	..	....
Broken range ashlar, cubic yards	6	10 96	1	10 00	..	....	1	9 00	..	....
New granite steps, cubic feet	4	3 89	1	3 40	..	....	1	3 00	..	....
Bridge seated fenders, cubic feet	2	3 00	..	....	..	....	..	....	..	....
Granite curb, linear feet	3	1 13	2	1 00	2	1 07½	..	....	..	....
Cinder filling, cubic yards	2	1 50	2	1 00	1	90	..	....	..	....
Selected surfacing material, cubic yards	2	1 25	2	1 50	1	90	..	....	..	....
Waterproofing, square feet	2	19	2	15	1	15	..	....	..	....
Inlets, Type "A"	2	28 00	3	43 33	5	58 40	3	48 33	3	46 67
Inlets, Type "B"	2	20 00	3	33 33	5	49 00	3	38 33	2	55 00
Cement flagging, square feet	2	17	3	16	2	20	1	19	1	14
Standard water pipes, 12 inches diameter, linear feet	2	3 00	2	3 00	1	3 00	..	....	..	....
Standard water pipes, 16 inches diameter, linear feet	2	4 00	1	4 00	1	4 00	..	....	..	....
Standard water pipes, 20 inches diameter, linear feet	2	5 00	2	5 00	1	5 00	..	....	..	....
Railing, Type "A," linear feet	2	7 00	2	8 00	1	7 50	..	....	..	....
Railing, Type "B," linear feet	2	3 00	2	3 00	1	2 90	..	....	..	....
Railing, Type "C," linear feet	2	1 00	2	1 00	1	2 00	..	....	..	....
Iron slag block paving, square yards	..	....	4	2 61	..	....	..	....	..	....
Top soil, cubic yards	..	....	2	89	..	....	1	1 50	..	....

Kind of Work.	1906		1907		1908		1909		1910	
	No. of Bids Included in Average.	Average Price.	No. of Bids Included in Average.	Average Price.	No. of Bids Included in Average.	Average Price.	No. of Bids Included in Average.	Average Price.	No. of Bids Included in Average.	Average Price.
Sodding, square feet	2	01⅝	..	....	1	24	..	....	..	....
Fill and back fill, cubic yards	..	....	2	.275	2	.225	..	....	..	....
Cyclopean masonry, cubic yards	..	....	1	5 00	..	....	..	....	..	....
Macadam relaid, square yards	..	....	..	....	1	50	..	....	..	....
Asphalt relaid, square yards	..	....	..	....	1	1 25	..	....	..	....
Coursed ashlar, cubic yards	..	....	..	....	1	9 00	..	....	..	....
Concrete drain, 3 inches in diameter, linear feet	..	....	..	....	1	9 75	..	....	..	....
Guard rail, new, linear feet	..	....	..	....	15	16	33	19	22	15
Old iron fence, linear feet	..	....	..	....	1	2 00	..	....	..	....
Reinforced concrete, 10 feet by 6 feet	..	....	..	....	1	40 00	..	....	..	....
Reinforced concrete, 6 feet by 5 feet	..	....	..	....	1	15 00	..	....	..	....
Cinder concrete	..	....	..	....	1	10 00	..	....	..	....
Old granite blocks redressed, etc., square yards	..	....	..	....	2	1 63	2	1 345	1	1 05
Rock fill, cubic yards	..	....	..	....	..	....	2	1 75	..	....
Fence, linear feet	..	....	..	....	..	....	1	1 25	..	....
Catch basins	..	....	..	....	..	....	2	65 00	..	....
Masonry inlets with granite covers	..	....	..	....	..	....	1	7 00	..	....
Old paving blocks purchased and removed, square yards	..	....	..	....	..	....	6	.025	..	....
Asphalt blocks (no guarantee), square yards	..	....	..	....	..	....	1	1 70	..	....
Asphalt on sidewalks, square yards	..	....	..	....	..	....	3	64	..	....
Mortar bed, cubic yards	..	....	..	....	..	....	1	6 96	..	....
Culvert, 4½ feet by 6 feet, linear feet	..	....	..	....	..	....	..	....	1	10 00
Granite curb, linear feet	..	....	..	....	..	....	..	....	1	50
Granite curb, 6 inches by 18 inches, linear feet	..	....	..	....	..	....	..	....	1	1 19
Granite bridgestone, square feet	..	....	..	....	..	....	..	....	1	70

Summary of Contracts.

Contracts in Force, January 1, 1910—Regulating, grading, etc., 40; regulating, paving, etc., 6; bridges and viaducts, 2; total, 48.

Contracts Executed During Year Ending December 31, 1910—Regulating, grading, etc., 18; regulating, paving, etc., 39; bridges and viaducts, 2; miscellaneous, 3; total, 62.

Contracts Completed During Year Ending December 31, 1910—Regulating, grading, etc., 34; regulating, paving, etc., 38; bridges and viaducts, 1; miscellaneous, 3; total, 76.

Contracts in Force, December 31, 1910—Regulating, grading, etc., 24; regulating, paving, etc., 7; bridges and viaducts, 3; total, 34.

The contracts in force December 31, 1910, represent a length of about 16 miles of uncompleted work of all kinds, in addition to the length shown as completed during year.

Relative to Field and Office Work.

Seventy per cent. payments made	222
Payments on acceptance, final payments and payments on retained amounts	157
Preliminary estimates made and forwarded	237
Reports made	602
Working plans completed	78
General plans completed	3
Detailed plans completed	2
Specifications made	48
Tracings	18
Blueprints made	36
*Records entered	23
*Field books made up	14
*Assessment lists completed, comprising 1,373 lots and a frontage of 97,934.86 linear feet	18
*Valuations and statements	23
Assessment lists in progress	1
Studies	109
Plans checked	16
Sketches (showing drainage conditions)	5
Assessment lists checked	43
Specifications checked	7
Inspector's rolls in duplicate made and forwarded	52
†Engineer's rolls in duplicate made and forwarded	14

In addition to the above there have been a great many cross sections plotted and figured and general office work done. During the year ending December 31, 1910, about 6,000 communications, also work for specifications, have been forwarded from this office relating to the work of this Bureau.

Field Work, Surveys and Measurements—Construction: Grade stakes, linear feet, 238,044; wall stakes, linear feet, 13,764; curb stakes, linear feet, 220,567.8; cross sections, linear feet, 155,644; bench marks, length of runs, 288,177; examinations, number, 787; number of works, 110.

Preliminary—Centre line, linear feet, 155,329.06; cross sections, linear feet, 142,051.2; bench levels, linear feet, 208,530; examinations, number, 208; number of works, 132.

Relative to Field and Office Work—Field work, number of borings, 13,570; boring examinations, linear feet of borings, 31,283.7.

General Summary of Classes and Quantities of Work—248,233.2 cubic yards earth excavation; 167,701 cubic yards rock excavation; 912,261.1 cubic yards filling; 143,820.03 linear feet new curbstone; 59,161.7 linear feet old curbstone; 337,187.3 square feet new flagging; 12,471 square feet old flagging; 40,049.4 square feet new bridgestone; 7,158.9 square feet old bridgestone; 24,447.96 cubic yards dry rubble masonry; 24,037.6 square yards new granite block pavement; 19,168.3 square yards sheet asphalt pavement; 133,693.81 square yards block asphalt pavement; 1,196.4 square yards macadam pavement; 7,988.10 square yards trap block pavement, replaced with other pavement; 48,523 square yards granite block pavement relaid or removed; 37,050 feet B. M. lumber; 27,565.8 linear feet fence or guard rail; 174,049 pounds iron and steel; 35,488.04 cubic yards concrete; 11,038.9 linear feet vitrified pipe; 659.78 cubic yards masonry in mortar; 7,188 linear feet railroad construction supervised; 3,333.3 square yards asphalt block relaid (repairs, cuts, etc.); 429.52 cubic yards random ashlar; 38.36 cubic feet granite steps; 65.08 cubic feet granite coping and newels; 19 spurs; 195.3 linear feet new iron railing; 24 catch basins built or rebuilt; 48 manholes built or rebuilt; 81.1 square yards paved gutters; 56.4 cubic yards selected fill; 7,593.97 square feet cement flagging; 10,255 square feet waterproofing; 2 linear feet old iron fence; 9.9 linear feet pipe drain; 4 inlets; 3.4 linear feet standard water pipe; 2.8 linear feet granite curb; 11.3 square feet woven wire fabric; 8.4 cubic feet brick masonry; 11,847 linear feet piles; 128.1 square feet sodding; 49.54 square feet top soil; 575 cubic yards rock fill; 1 old bridge removed; 1 removal of fountain, etc.; 244 linear feet balustrade; 237 linear feet parapet wall; 200 linear feet 6-inch sewer lowered.

Cement tests made during the year 1910 represent a total number of 225,264 bags of cement.

Number of briquettes made during the year amount to 8,610.

Number of briquettes broken, including long time tests, amount to 8,858.

In addition to the above, there were quite a number of tests made of screenings for the Maintenance Department to ascertain if specification requirements were fulfilled.

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*First quarter only; see report of Bureau of Design for balance of year.

†1 supplementary roll; 1 extra roll.

Financial Statement of Contracts in Force During Year Ending December 31, 1910, *on which Payments Have Been Certified—Amount of* 70 *Per Cent. Payments*

Title of Contracts.	Date of Execution.	Estimated Cost of Work.	Total Amount Earned.	Total Amount Retained.	Total Amount Certified.	Amount Certified During Year.
E. 149th st., from Southern boulevard to East River, regulating, grading, etc.	May 22, 1905	$20,310 00	$20,220 00	$6,066 00	$14,154 00	$7,266 00
Cromwell ave., from E. 150th st. to Jerome ave., regulating, grading, etc.	June 4, 1906	31,238 50	16,328 80	4,898 64	11,430 16	5,116 76
West Farms road, from Morris Park ave. to Main st., Westchester, regulating, grading, etc.	Apr. 8, 1908	165,744 15	123,777 25	37,133 18	86,644 07	7,780 15
Edenwald ave., from E. 233d st. to City line, regulating, grading etc.	June 7, 1909	34,469 50	24,984 70	7,495 41	17,489 29	8,504 44
Westchester ave., from Main st. to Eastern boulevard, regulating and grading	Aug. 16, 1909	86,195 50	74,826 30	22,447 89	52,378 41	47,359 41
Sheridan ave., from E. 165th to E. 169th sts., regulating, grading, etc.	Aug. 20, 1909	29,811 50	28,174 00	8,452 20	19,721 80	11,741 80
E. 182d st., from Jerome ave. to Valentine ave., regulating, grading, etc.	Aug. 23, 1909	15,628 85	11,340 00	3,402 00	7,938 00	5,575 64
Olinville ave., from Bronx and Pelham parkway to Burke st., regulating and grading	Sept. 27, 1909	72,929 50	55,023 00	16,506 90	38,516 10	32,898 60
Teller ave., from E. 170th st. to Morris ave., regulating, grading etc.	Sept. 27, 1909	14,988 30	10,277 10	3,083 13	7,193 97	7,193 97
Public place, Westchester square, regulating, grading etc.	Oct. 4, 1909	7,592 50	5,562 50	1,668 75	3,893 75	3,893 75
Merriam ave., from Ogden ave. to Aqueduct ave., regulating, grading, etc.	Dec. 6, 1909	31,075 50	30,158 00	9,047 40	21,110 60	21,110 60
W. 231st st., Bailey to Riverdale aves, regulating grading, etc.	Dec. 8, 1909	70,661 00	66,084 45	19,825 34	46,259 11	46,259 11
Castle Hill ave., from West Farms road to public place, etc., regulating, grading, etc.	Dec. 8, 1909	76,181 50	58,894 50	17,668 35	41,226 15	41,226 15
Randall ave., from Leggett ave. to Bronx River, regulating, grading, etc.	Dec. 31, 1909	56,396 01	11,434 20	3,430 26	8,003 94	8,003 94
Walker ave., from Unionport road to Westchester ave., repaving with asphalt block	Jan. 13, 1910	113,918 50	88,221 00	26,466 30	61,754 70	61,754 70
E. 180th st., bridge and approach over Bronx River	Feb. 4, 1910	37,784 55	28,813 30	4,322 00	24,491 30	24,491 30
Bartholdi st., from White Plains road to Bronxwood ave., regulating, grading, etc.	Feb. 8, 1910	21,759 95	13,200 00	3,960 00	9,240 00	9,240 00

Eden ave., from Morris ave. to 174th st., regulating, grading, etc.	Feb. 8, 1910	29,927 50	24,585 00	7,375 50	17,209 50	17,209 50
Jerome ave., bridge over Mosholu parkway	Apr. 4, 1910	72,682 50	46,488 60	6,973 29	39,515 31	39,515 31
E. 180th st., from Bronx River to West Farms road, regulating and grading	Apr. 12, 1910	46,297 50	20,527 50	6,158 25	14,369 25	14,369 25
Wyatt st., from Tremont to Morris Park aves., regulating, grading, etc.	Aug. 1, 1910	11,871 00	11,026 80	3,308 04	7,718 76	7,718 76
Completing Leggett ave., from Southern boulevard to Randall ave., regulating and grading	Aug. 9, 1910	9,501 00	1,785 00	535 50	1,249 50	1,249 50
Brook ave., from Westchester ave. to E. 156th st., repaving with granite block	Aug. 31, 1910	14,293 40	12,338 50	3,701 55	8,636 95	8,636 95
E. 140th st., from 3d to Morris aves., etc., etc., repaving with sheet asphalt	Oct. 6, 1910	7,480 60	3,343 50	1,003 05	2,340 45	2,340 45
W. 165th st., Anderson to Lind aves., paving with granite block	Nov. 3, 1910	7,534 50	7,160 00	2,148 00	5,012 00	5,012 00
Boscobel ave., from Jerome ave. to Washington Bridge, paving with asphalt block	Sept. 28, 1910	45,576 75	30,325 50	9,097 65	21,227 85	21,227 85
		$1,131,850 06	$824,899 50	$236,174 58	$588,724 92	$466,695 89

Payments on Acceptance, Final and Retained Amounts.

Title of Contracts.	Date of Execution.	Date of Completion.	Estimated Cost of Whole Work.	Actual Cost of Whole Work.	Approximate Variation Between Estimated and Actual Cost of Whole Work Shown in Percentage.	Total Amount Retained as Security for Repairs.	Total Amount Certified.	Total Amount Certified During Year.	Remarks.
E. 167th st., transverse road...........	Sept. 29, 1908	Jan. 22, 1910	$102,192 75	$105,273 57	+3.01	$5,363 68	$99,909 89	$29,636 82	
Monterey ave., from 180th st. to Quarry road	Sept. 27, 1909	Feb. 4, 1910	5,677 75	5,731 27	+0.94	....	5,731 27	2,831 52	Completed.
City Island ave., from bridge approach to Long Island Sound..................	Mar. 31, 1908	Jan. 20, 1910	77,082 50	75,033 71	—2.65	....	75,033 71	23,873 12	Completed.
Rosewood ave., from White Plains road to Cruger ave......................	Dec. 14, 1909	May 7, 1910	1,435 00	1,435 60	......	....	1,435 60	1,435 60	Completed.
Garrison ave., from Whittier st. to 100 feet east of Edgewater road..........	Mar. 16, 1909	Nov. 20, 1909	3,081 00	2,757 33	—10.50	....	2,757 33	2,757 33	Completed.
E. 185th st., from Prospect ave. to Southern boulevard	Mar. 3, 1910	May 12, 1910	1,226 30	1,171 72	—4.46	....	1,171 72	1,171 72	Completed.
Seddon st., from St. Raymonds ave. to West Farms road....................	Sept. 27, 1909	May 28, 1910	6,283 00	6,012 44	—4.30	....	6,012 44	6,012 44	Completed.
E. 161st st., from 3d to Brook aves.	Mar. 3, 1910	June 24, 1910	1,327 95	1,509 12	+13.63	....	1,509 12	1,509 12	Completed.
DeKalb ave., from E. 208th st. to Gun Hill road	Sept. 27, 1909	July 9, 1910	4,071 50	3,813 81	—6.34	....	3,813 81	3,813 81	Completed.
Burnett place, from Garrison ave. to Tiffany st.	Oct. 27, 1909	July 19, 1910	3,533 75	3,979 85	+12.62	....	3,979 85	3,979 85	Completed.
Completing Tremont ave., from Bronx River to Eastern boulevard..........	Sept. 22, 1908	June 11, 1910	22,242 50	net 22,234 94	—0.03	....	22,234 94	9,595 74	Com. 69½ days at $5; charge not included in actual cost.
Belmont st., from Webster to Clay aves..	May 18, 1910	July 27, 1910	1,101 50	1,115 80	+1 29	....	1,115 80	1,115 80	Completed.
Longfellow ave., from Lafayette ave. to N. Y., N. H. & H. R. R.............	July 22, 1909	July 3, 1910	9,976 00	10,035 59	+0 59	....	10,035 59	8,835 19	Completed.

Astor ave., from Olinville to White Plains aves.	Sept. 27, 1909	July 29, 1910	7,564 80	7,214 20	—4 63	....	7,214 20	7,214 20	Completed
Cannon pl., from Giles pl. to E. 238th st.	Dec. 10, 1909	Aug. 16, 1910	10,274 00	10,689 05	+4 04	....	10,689 05	10,689 05	Completed.
Hawkstone st., from Walton ave. to Grand Boulevard and Concourse	Dec. 6, 1909	Aug. 22, 1910	1,022 30	net 1,202 99	+17 71	....	net 1,202 99	1,202 99	10 days at $5=$50 charged. Completed.
Gun Hill rd., from Jerome ave. to Mosholu pky.	Oct. 13, 1909	Aug. 2, 1910	9,946 00	net 9,427 99	—5 21	....	net 9,427 99	9,427 99	20 days at $5=$100 charged. Completed.
Exterior st., from E. 149th st. to Jerome ave.	Mar. 25, 1908	Aug. 24, 1910	22,467 40	net 22,523 63	+0 25	....	net 22,523 63	16,729 87	105¾ days at $5=$528.75 charged. Completed.
Fox st., from E. 156th st. to Longwood av.	Aug. 5, 1910	Sept. 20, 1910	1,971 25	1,767 51	—10 35	....	1,767 51	1,767 51	Completed.
Edgewater rd., from Garrison to Seneca aves.	Oct. 26, 1909	Sept. 14, 1910	10,889 20	10,712 87	—1 70	....	10,712 87	8,850 87	Completed.
Seneca ave., from Whittier st. to 100 ft. east of Edgewater rd.	Oct. 26, 1909	Nov. 2, 1910	5,924 00	5,797 39	—2 14	....	5,797 39	5,797 39	Completed.
Commonwealth ave., from West Farms rd. to Westchester ave.	Oct. 4, 1909	Nov. 12, 1910	26,709 00	26,448 03	—0 98	....	26,448 03	26,448 03	Completed
Lyon ave., fr. Zerega to Castle Hill aves.	Aug. 2, 1910	Nov. 15, 1910	9,277 75	8,497 41	—8 41	....	8,497 41	8,497 41	Completed.
Wayne ave., from Reservoir Oval west to Gun Hill rd.	Oct. 4, 1910	Dec. 6, 1910	2,406 25	2,349 58	—2 33	....	2,349 58	2,349 58	Completed.
Mosholu Pky. North, from Perry to Jerome aves.	June 29, 1909	Dec. 8, 1910	33,637 80	39,836 72	+18 43	....	39,836 72	37,176 72	Completed.
Wales ave., from 141st st. to St. Joseph's st., etc.	Dec. 3, 1909	Dec. 8, 1910	28,189 00	30,369 41	+7 96	....	30,369 41	30,369 41	Completed.
Whitlock ave., from Leggett to Longwood aves.	Aug. 2, 1910	Dec. 10, 1910	7,147 00	7,434 14	+4 01	....	7,434 14	7,434 14	Completed.
Bronx boulevard, from Bronx and Pelham pky. to Burke ave.	Dec. 8, 1909	Dec. 31, 1910	53,662 00	75,408 55	+40 52	....	75,408 55	75,408 55	Completed.
222d st., from Bronxwood to Carpenter aves.	Apr. 4, 1910	Dec. 23, 1910	21,682 75	21,428 97	—1 17	....	21,428 97	21,428 97	Completed.
Kingsbridge ave., from W. 230th st. to Broadway	Dec. 8, 1909	Dec. 31, 1910	55,270 00	56,798 40	+2 77	....	56,798 40	56,798 40	Completed.
Burnside ave., Transverse rd., in connection with Grand boulevard and Concourse	Sept. 25, 1907	Apr. 23, 1909	98,190 75	97,046 67	—1 16	....	97,046 67	4852 33	Completed.
Belmont st., from Weeks to Eden aves.	Dec. 28, 1908	Dec. 31, 1909	6,169 61	6,445 23	+4 39	....	6,445 23	300 00	Completed.

Title of Contracts.	Date of Execution.	Date of Completion.	Estimated Cost of Whole Work.	Actual Cost of Whole Work.	Approximate Variation Between Estimated and Actual Cost of Whole Work Shown in Percentage.	Total Amount Retained as Security for Repairs.	Total Amount Certified.	Total Amount Certified During Year.	Remarks.
Grand boulevard and Concourse, from E. 161st st. to Mosholu pky..............	July 11, 1902	Nov. 30, 1909	1,011,322 50	1,049,609 88	+3 78	....	1,049,609 88	21,889 90	Completed.
Paving With Asphalt Blocks.									
Arthur ave., from E. 175th st. to Tremont ave.	Dec. 6, 1909	July 25, 1910	10,555 50	10,560 33	+0 05	2,112 07	8,448 26	8,448 26	5 year guarantee.
Daly ave., from E. 176th to E. 177th sts.	June 14, 1910	Aug. 9, 1910	8,627 50	8,545 91	—0 94	1,709 18	6,836 73	6,836 73	5-year guarantee.
Concord ave., from E. 149th st. to E. 152d st.	Aug. 1, 1910	Oct. 4, 1910	9,731 22	9,688 42	—0 44	1,937 68	7,750 74	7,750 74	5-year guarantee.
Vyse ave., from Home to E. 172d sts....	Aug. 1, 1910	Oct. 13, 1910	16,402 28	16,385 81	—0 10	3,277 16	13,108 65	13,108 65	5-year guarantee.
St. Paul's pl., fr. Webster to Fulton aves.	Dec. 6, 1909	Oct. 15, 1910	16,291 30	16,536 82	+1 50	3,307 36	13,229 46	13,229 46	5-year guarantee.
Oakland pl., from Belmont to Prospect aves.	Aug. 29, 1910	Oct. 28, 1910	6,989 35	6,969 57	—0 29	1,393 91	5,575 66	5,575 66	5-year guarantee.
Grote st., from E. 182d st. to Southern boulevard	Aug. 29, 1910	Oct. 5, 1910	12,404 50	12,408 28	+0 03	2,481 66	9,926 62	9,926 62	5-year guarantee.
Park ave. west, from 175th to 178th sts..	Sept. 20, 1909	Apr. 22, 1910	14,647 90	14,726 68	+0 54	2,945 34	11,781 34	11,781 34	5-year guarantee.
E. 164th st., from Prospect to Stebbins aves.	Sept. 20, 1909	May 11, 1910	2,637 80	2,517 05	—4 57	503 41	2,013 64	2,013 64	5-year guarantee.
Whitlock ave., from Longwood ave. to Tiffany st.	Dec. 8, 1909	Apr. 30, 1910	8,059 80	8,080 20	+0 25	1,616 04	6,464 16	6,464 16	5-year guarantee.
Grant ave., from E. 161st st. to E. 162d st.	Sept. 20, 1909	May 27, 1910	3,760 80	3,784 72	+0 63	756 94	3,027 78	3,027 78	5-year guarantee.
Elsmere pl., from Marmion ave. to Southern boulevard	Sept. 20, 1909	May 31, 1910	4,273 75	4,326 47	+1 23	865 29	3,461 18	3,461 18	5-year guarantee.
Hoe ave., from Tremont ave. to E. 172d st.	Sept. 20, 1909	May 28, 1910	14,413 80	14,356 23	—0 39	2,871 25	11,484 98	10,113 18	5-year guarantee.
Anna pl., from Brook to Webster aves...	Sept. 20, 1909	June 4, 1910	1,952 25	1,958 23	+0 30	391 65	1,566 58	1,566 58	5-year guarantee.
Mosholu pky. So., from Webster to Briggs aves.	Dec. 6, 1909	June 9, 1910	17,844 90	17,831 84	—0 07	3,566 37	14,265 47	14,265 47	5-year guarantee.
College ave., from 165th to 166th sts...	Mar. 22, 1910	July 2, 1910	4,476 70	4,488 79	+0 27	897 76	3,591 03	3,591 03	5-year guarantee.

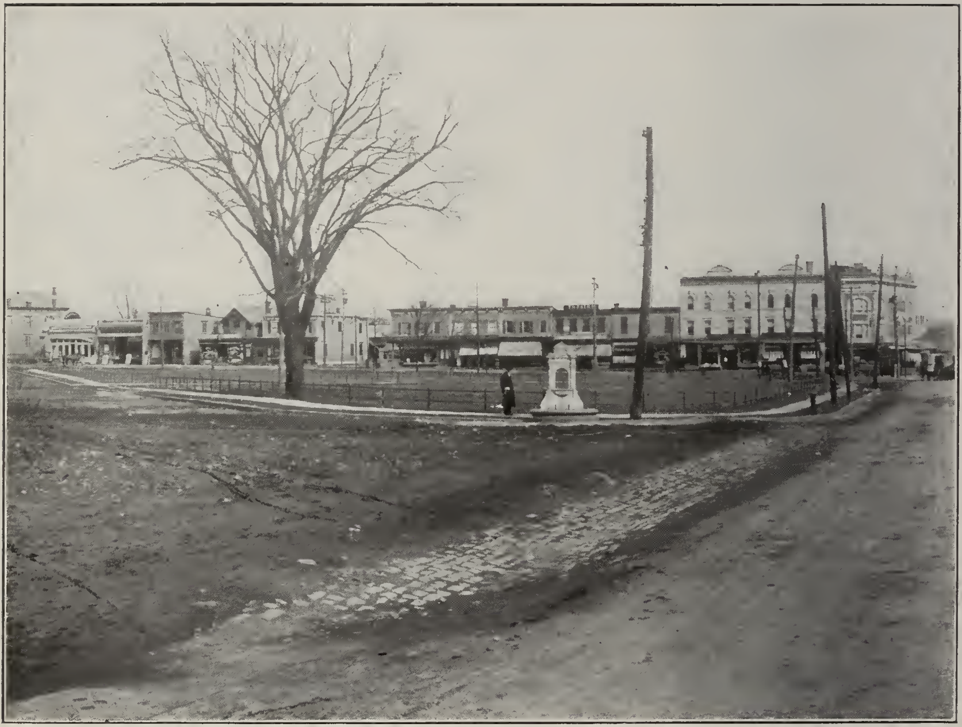
E. 159th st., from Brook to St. Ann's aves.	May 23, 1910	July 2, 1910	2,664 40	2,586 42	—2 93	517 28	2,069 14	2,069 14	5-year guarantee.
E. 170th st., from Wilkins ave. to Charlotte st.	Apr. 12, 1910	June 28, 1910	2,307 95	2,313 58	+0 26	462 72	1,850 86	1,850 86	5-year guarantee.
E. 150th st., from Robbins to Prospect aves.	Oct. 17, 1910	Nov. 30, 1910	9,521 10	8,872 12	—6 82	1,774 42	7,097 70	7,097 70	5-year guarantee.
Wilkins ave., from Intervale ave. to Southern boulevard	Oct. 28, 1910	Dec. 19, 1910	9,362 56	9,324 89	—0 41	1,864 98	7,459 91	7,459 91	5-year guarantee.
E. 172d st., from 3rd to Park aves.	Oct. 31, 1910	Dec. 28, 1910	7,001 54	7,064 27	+0 90	1,412 85	5,651 42	5,651 42	5-year guarantee.
Honeywell ave., from Tremont ave. to E. 182d st.	Mar. 26, 1908	Aug. 25, 1908	17,180 90	17,552 36	+2 17	....	17,552 36	3,510 47	Complete.
Morris ave., from Tremont to Burnside aves.	Nov. 17, 1908	June 2, 1909	9,683 10	9,667 56	—0 16	....	9,667 56	1,933 51	Complete.
E. 152d st., from Bergen to Brook aves.	Mar. 16, 1909	June 18, 1909	2,153 00	2,080 18	—3 39	....	2,080 18	416 04	Complete.
Elm pl., from E. 189th st. to Kingsbridge road	Mar. 19, 1909	Sept. 21, 1909	3,884 60	3,841 16	—1 13	....	3,841 16	768 23	Complete.
Cambreling ave., from Grote st. to St. John's College property	Apr. 5, 1909	Sept. 16, 1909	20,369 80	20,305 69	—0 31	....	20,305 69	4,061 14	Complete.
Teller ave., from Park ave. to E. 164th st.	Nov. 17, 1908	Sept. 21, 1909	7,996 50	7,874 34	—1 54	....	7,874 34	1,574 87	Complete.
Morris Park ave., from West Farms road to Bear Swamp road	Nov. 12, 1908	Oct. 16, 1909	90,782 20	90,602 19	—0 19	....	90,602 19	18,120 44	Complete.
Broadway, from Spuyten Duyvil Creek to north line City of New York	June 9, 1909	Nov. 18, 1909	215,154 20	215,598 86	+0 21	....	215,598 86	43,119 77	Complete.
Fulton ave., from 170th to 175th sts.	Sept. 7, 1909	Nov. 30, 1909	41,243 25	40,886 27	—0 86	....	40,886 27	8,177 25	Complete.
Mapes ave., from E. 177th to E. 182d sts.	Sept. 7, 1909	Nov. 30, 1909	20,269 30	20,290 93	+0 11	....	20,290 93	4,058 19	Complete.
E. 178th st., from Bryant ave. to Southern boulevard	Sept. 7, 1909	Dec. 31, 1909	12,812 40	12,849 21	+0 29	....	12,849 21	2,569 84	Complete.
Courtlandt ave., from E. 148th to E. 150th sts.	Oct. 4, 1909	Dec. 31, 1909	6,669 40	6,483 93	—2 78	....	6,483 93	1,296 79	Complete.
E. 165th st., fr. Webster to Morris aves.	Mar 16, 1909	Sept. 21, 1909	15,862 10	15,861 89	......	....	15,861 89	3,172 38	Complete.
E. 135th st., from 3d to Alexander aves.	Sept. 20, 1909	Nov. 13, 1909	8,335 05	8,325 42	—0 12	....	8,325 42	1,665 08	Complete.
Paving With Asphalt Block and Granite Block.									
Crotona Park East, from Crotona Park South to Southern boulevard	Dec. 6, 1909	June 30, 1910	33,835 25	34,089 42	+0 75	6,817 88	27,271 54	27,271 54	5-year guarantee.
Jennings st., from Stebbins ave. to West Farms road	Oct. 4, 1909	June 16, 1910	26,116 70	net 26,677 51	+2 14	5,335 50	21,342 01	21,342 01	5-year guarantee, 6 days at $5 ($30) chgd.

Title of Contracts.	Date of Execution.	Date of Completion.	Estimated Cost of Whole Work.	Actual Cost of Whole Work.	Approximate Variation Between Estimated and Actual Cost of Whole Work Shown in Percentage.	Total Amount Retained as Security for Repairs.	Total Amount Certified.	Total Amount Certified During Year.	Remarks.
189th st., from Fordham road to Southern boulevard	May 13, 1908	Nov. 4, 1908	75,791 90	74,772 32	—1 34	....	74,772 32	15,454 46	Complete.
E. 179th st., from Jerome ave. to Morris ave., etc.	Mar. 19, 1909	July 15, 1909	13,426 45	12,770 17	—4 88	....	12,770 17	1,915 51	Complete.
E. 176th st., from Arthur ave. to Southern boulevard	Aug. 31, 1909	Dec. 31, 1909	28,120 00	27,924 59	—0 69	....	27,924 59	5,589 92	Complete.
Paving With Granite Blocks.									
Tremont ave., from Jerome ave. to approach to Concourse	Aug. 2, 1910	Nov. 1, 1910	9,644 05	9,680 67	+0 37	759 64	8,921 03	8,921 03	1-year guarantee.
Longwood ave. and Tiffany st., from Southern boulevard to East River....	July 15, 1909	Apr. 19, 1910	52,830 35	53,019 62	+0 35	5,019 16	48,000 46	29,426 31	1-year guarantee.
E. 184th st., from Webster to 3d aves...	July 6, 1909	Nov. 10, 1909	12,415 25	11,612 77	—6 46	....	11,612 77	2,322 55	Complete.
Paving With Sheet Asphalt.									
Beck st., from Longwood to Intervale aves.	Sept. 20, 1909	Aug. 16, 1910	5,204 30	5,230 12	+0 49	1,046 02	4,184 10	4,184 10	5-year guarantee.
156th st. bridge, over N. Y. N. H. & H. R. R.	Dec. 8, 1909	Apr. 9, 1910	1,778 95	1,758 92	—1 13	351 78	1,407 14	1,407 14	5-year guarantee.
E. 161st st., from Prospect to Union aves.	May 23, 1910	June 30, 1910	2,157 25	2,192 21	+1 62	438 44	1,753 77	1,753 77	5-year guarantee.
E. 167th st., from Union to Prospect aves.	Oct. 14, 1910	Dec. 27, 1910	1,963 58	1,980 49	+0 87	396 10	1,584 39	1,584 39	5-year guarantee.
Irvine st., from Garrison to Seneca aves.	July 15, 1909	Oct. 23, 1909	3,770 50	3,288 49	—12 78	....	3,288 49	657 70	Complete.
Paving With Wood Block.									
E. 154th st., from Morris to Park ave. E.	Sept. 16, 1908	Nov. 16, 1908	1,823 05	1,802 28	—1 13	....	1,802 28	360 46	Complete.

Paving With Iron Slag Block.									
Clay ave., from E. 166th st. to Wendover ave.	Oct. 14, 1907	Sept. 23, 1909	66,817 50	66,884 20	+0 10	....	66,884 20	16,198 44	Complete.
Repaving Asphalt Block.									
Brook ave., from Webster to Wendover aves.	June 14, 1910	Sept. 21, 1910	28,475 40	29,639 43	+4 09	5,927 89	23,711 54	23,711 54	5-year guarantee.
Tinton ave., from 149th to Fox sts.	Oct. 4, 1910	Nov. 26, 1910	2,466 02	2,384 59	—3 33	476 92	1,907 67	1,907 67	5-year guarantee.
Repaving Asphalt Block.									
Tinton ave., from E. 152d st. to Westchester ave.	Dec. 6, 1909	May 13, 1910	8,843 70	net 8,770 19	—0 83	1,754 04	7,016 15	7,016 15	5-year guarantee.
136th st., from Alexander to Willis aves.	Sept. 20, 1909	June 23, 1910	6,523 45	net 7,069 29	+8 36	1,413 86	5,655 43	5,655 43	5-year guarantee.
Webster ave., from Kingsbridge road to Bedford Park boulevard	Sept. 3, 1908	Jan. 9, 1909	70,826 00	72,230 56	+1 94	....	72,230 56	14,446 11	Complete.
E. 135th st., from Alexander to Willis aves.	Sept. 17, 1908	Nov. 28, 1908	6,830 00	6,759 41	—1 03	....	6,759 41	1,351 88	Complete.
E. 164th st., from Brook to 3d aves.	Sept. 17, 1908	Dec. 5, 1908	8,672 60	8,616 63	—0 64	....	8,616 63	1,723 33	Complete.
E. 136th st., from Lincoln to Alexander aves.	Aug. 17, 1908	Mar. 30, 1909	6,146 05	6,111 65	—0 56	....	6,111 65	1,222 33	Complete.
E. 189th st. with Hoffman st., Arthur ave. and Belmont ave. intersections	Nov. 17, 1908	Sept. 21, 1909	2,109 25	1,843 01	—12 61	....	1,843 01	368 60	Complete.
Webster ave., from Welch st. to Fordham square	Nov. 17, 1908	Sept. 22, 1909	8,726 65	8,638 90	—1 01	....	8,638 90	1,727 78	Complete.
E. 141st st., from 3d to Brook aves.	Aug. 8, 1901	Dec. 13, 1901	27,907 55	27,916 40	+0 03	709 67	27,206 73	1,419 30	4% No. 4 & No. 3.
E. 150th st., from River to Walton aves.	Mar. 16, 1909	Dec. 28, 1909	4,229 75	4,140 34	—2 13	....	4,140 34	828 07	Complete.
Park ave., from E. 165th to E. 177th sts.	Sept. 10, 1909	Dec. 31, 1909	72,510 10	72,641 83	+0 18	....	72,641 83	14,528 37	Complete.
Jennings st., from Union to Prospect aves.	Mar. 19, 1909	Oct. 30, 1909	5,343 50	5,198 85	—2 71	....	5,198 85	1,039 77	Complete.
Repaving With Asphalt Block and Granite Blocks.									
Boston road, from Southern boulevard to Tremont ave.	Sept. 11, 1908	Dec. 31, 1908	55,936 95	52,552 66	—6 05	....	52,552 66	10,510 53	Complete.
Morris ave., from 138th to 155th sts., etc.	Aug. 19, 1901	Dec. 26, 1901	89,411 00	89,911 39	+0 56	2,427 37	87,484 02	7,282 05	4%-Nos. 2, 3 and 4.
Repaving With Granite Block.									
151st st., 155th st. and 157th sts., etc.	Dec. 17, 1909	Nov. 12, 1910	82,130 90	81,591 95	—0 65	4,451 27	77,140 68	77,140 68	1-year guarantee.
Park ave. E., from E. 156th to E. 161st sts.	Dec. 17, 1909	May 14, 1910	12,037 90	11,892 00	—1 21	1,373 17	10,518 83	10,518 83	1-year guarantee.
E. 149th st., from Morris to Mott aves.	Sept. 25, 1908	Dec. 26, 1908	13,934 20	13,537 91	—2 84	....	13,537 91	1,058 66	Complete.

Title of Contracts.	Date of Execution.	Date of Completion.	Estimated Cost of Whole Work.	Actual Cost of Whole Work.	Approximate Variation Between Estimated and Actual Cost of Whole Work Shown in Percentage.	Total Amount Retained as Security for Repairs.	Total Amount Certified.	Total Amount Certified During Year.	Remarks.
E. 134th st., from Brown pl. to Brook ave.	Jan. 20, 1909	June 11, 1909	2,539 55	2,539 22	......	....	2,539 22	174 05	Complete.
3d ave., from E. 138th to E. 148th sts...	Sept. 21, 1908	July 12, 1909	51,277 50	50,032 73	—2 43	....	50,032 73	3,969 34	Complete.
Webster ave., from E. 165th to E. 171st sts.	Mar. 8, 1909	Nov. 8, 1909	44,447 00	44,514 06	+0 16	....	44,514 06	2,568 82	Complete.
Bergen ave., from E. 147th st. to Westchester ave.	July 7, 1909	July 21, 1909	4,579 45	4,546 98	—0 70	....	4,546 98	909 40	Complete.
Repaving With Sheet Asphalt.									
E. 160th st., from Washington to Elton aves.	Aug. 31, 1910	Oct. 15, 1910	1,599 09	1,572 44	—1 69	314 49	1,257 95	1,257 95	5-year guarantee.
Wendover ave., from Washington to Park aves.	Oct. 7, 1910	Nov. 16, 1910	3,732 70	3,685 96	—1 23	737 19	2,948 77	2,948 77	5-year guarantee.
E. 140th st., from 3d to Brook aves.....	Apr. 18, 1899	July 18, 1899	22,369 20	22,540 35	+1 07	....	32,540 35	1,127 02	Complete.
St. Ann's ave., from Rae st. to 3d ave..	Nov. 17, 1908	Oct. 7, 1909	29,721 60	29,548 26	—0 58	....	29,548 26	5,909 65	Complete.
Park ave., from 162d st. to Webster ave..	July 27, 1900	Oct. 8, 1900	3,603 00	3,375 00	—6 63	....	3,375 00	110 82	Complete.
Brook ave., from 3d to Webster aves..	July 27, 1900	Dec. 5, 1900	6,352 00	5,511 59	—13 25	....	5,511 59	176 10	Complete.
150th st., from Melrose to Courtlandt aves.	July 27, 1900	Oct. 8, 1900	4,543 60	4,597 21	+1 16	....	4,597 21	122 33	Complete.
166th st., from 3d to Park aves.	Aug. 29, 1900	Dec. 21, 1900	8,310 50	8,845 67	+6 44	....	8,845 67	239 05	Complete.
165th st., from Boston rd. to Union ave.	July 27, 1900	Nov. 5, 1900	16,542 00	17,196 27	+3 95	....	17,196 27	467 89	Complete.
170th st., from Webster to Franklin aves.	July 27, 1900	Nov. 5, 1900	6,030 00	5,850 33	—2 98	....	5,850 33	188 10	Complete.
157th st., from Courtlandt to Melrose aves.	July 27, 1900	Jan. 17, 1901	4,383 20	4,634 99	+5 75	....	4,634 99	245 05	Complete, including 4%—$4.
Brook ave., from 143d to 144th sts.....	July 27, 1900	Nov. 24, 1900	5,027 80	5,017 06	—0 22	153 17	4,863 89	153 15	4%—$4.
E. 153d st., from Elton to Melrose aves.	Aug. 29, 1900	Aug. 1, 1901	4,362 00						
E. 151st st., from Melrose to Courtlandt aves.	July 29, 1901	Nov. 1, 1901	6,205 40	6,200 90 3,998 52	—0 06 —0 37	144 25 92 33	6,056 65 3,906 19	144 26 92 34	4%, No. 4. 4%, No. 4.

E. 148th st., from 3d to Courtlandt aves.	Oct. 7, 1901	Dec. 2, 1901	4,014 00	4,366 16	+0 09	115 17	4,250 99	115 16	4%, No. 4.
E. 135th st., from Willis ave. to Brown pl.	Oct. 17, 1901	Dec. 16, 1901	10,317 70	10,379 30	+0 60	282 57	10,096 73	282 57	4%, No. 4.
Elton ave., from 155th to 161st sts......	Aug. 15, 1901	Nov. 2, 1901	16,622 60	16,429 02	—1 16	438 10	15,990 92	876 16	4%, Nos. 3 and 4.
E. 135th st., from 3d ave. to Mott Haven Canal	Aug. 15, 1901	Oct. 18, 1902	8,705 50	8,562 47	—1 64	558 84	8,003 63	279 41	4%, No. 3.
Eagle ave., from 161st to 163d sts......	July 27, 1900	Nov. 4, 1901	4,450 00	4,588 84	+3 10	147 08	4,441 76	294 18	4%, Nos. 3 and 4.
Boston rd., from Jefferson pl. to Tremont ave	July 29, 1901	Nov. 4, 1901	21,230 00	23,412 75	+10 28	672 29	22,740 46	672 28	4%, No. 4.
E. 138th st., from Alexander to Willis aves.	July 27, 1900	Nov. 4, 1901	11,509 60	11,639 03	+1 12	376 35	11,262 68	752 70	4%, Nos. 3 and 4.
162d st., from 3d to Courtlandt aves...	July 27, 1900	Dec. 19, 1900	20,269 00	20,896 88	+3 09	....	20,896 88	1,185 94	Complete, including 4%, No. 4.
147th st., from 3d to St. Ann's aves.....	July 27, 1900	Dec. 19, 1900	17,825 00	18,611 04	+4 41	....	18,611 04	1,098 45	Complete, including 4%, No. 4.
St. Ann's ave., from 147th to 148th sts.	July 27, 1900	Dec. 20, 1900	4,635 00	4,736 57	+2 20	....	4,736 57	295 08	Complete, including 4%, No. 4.
Repaving With Sheet Asphalt.									
137th st., from Alexander ave. to Brown place	July 27, 1900	Jan. 9, 1901	17,255 50	17,796 65	+3 13	....	17,796 65	981 28	Complete, including 4%, No. 4.
St. Ann's ave., from E. 138th st. to E. 144th sts...........................	July 28, 1900	Oct. 8, 1900	25,094 00	25,041 94	—0 20	....	25,041 94	3,179 14	Nos. 2, 3, 4 and final, 4%.
154th st., from Elton to Melrose aves...	July 27, 1900	Dec. 31, 1900	4,188 60	4,409 04	+5 25	....	4,409 04	231 72	Complete, including 4%, No. 4.
Repaving With Wood Block.									
E. 136th st., from Cypress ave. to Southern boulevard	Sept. 16, 1908	Nov. 30, 1908	6,151 80	6,119 57	—0 52	....	6,119 57	1,223 91	Complete.
Regulating, grading and steps, E. 171st st., from Webster to Clay aves.	Sept. 17, 1909	May 2, 1910	3,076 45	3,041 52	—1 13	271 24	2,770 28	2,770 28	1-year guarantee.
Sidewalk repairs, St. Ann's ave., in front of 597-599	Mar. 21, 1910	Apr. 4, 1910	51 00	51 00	......	....	51 00	51 00	P. O. Complete.
Flag, etc., Aqueduct ave. and Brandt pl.	Apr. 21, 1910	Aug. 18, 1910	184 00	184 00	......	....	184 00	184 00	P. O. Complete.
Fence, etc., E. 135th st., between 446 and 474	Sept. 14, 1910	Sept. 29, 1910	60 00	60 00	......	....	60 00	60 00	P. O. Complete.
Bridge, E. 177th st. over Bronx River..	Aug. 26, 1908	Aug. 26, 1909	53,920 25	51,403 28	—4 67	....	51,403 28	2,570 16	Complete.
Payments on Acceptance, Final and Retained Amounts			$3,623,421 20	$3,687,727 36	+1 77	$85,030 78	$3,602,696 58	$1,050,688 80	



Westchester Square Improvement.

Recapitulation.

Total Amount of	Estimated Cost.	Total Amount Earned.	Total Amount Retained.	Total Amount Certified.	Certified During Year.
70% payments	$1,131,850 06	$824,899 50	$236,174 58	$588,724 92	$466,695 89
Payments on Acceptance, final and retained amoun.ts	3,623,421 20	3,687,727 36	85,030 78	3,602,696 58	1,050,688 80
Grand total..	$4,755,271 26	$4,512,626 86	$321,205 36	$4,191,421 50	$1,517,384 69

Respectfully submitted, S. C. THOMPSON, Engineer of Highways.

TOPOGRAPHICAL BUREAU.

Mr. R. H. Gillespie, *Chief Engineer of Sewers and Highways:*

Sir—I beg to transmit herewith a general recapitulation of the work done in the Topographical Bureau, during the year 1910.

The Topographical Bureau is charged: First, with the topographical surveying of the Borough; second, the laying out of the street system; third, the establishing of grades; fourth, the monumenting of the established street system, and fifth, the preparation of the maps for the Commissioners of Estimate and Assessment in the proceedings to acquire title to avenues and streets; in fact, the Topographical Bureau supplies the groundwork on which all the improvements in the Borough are based.

Considerable progress can be reported in certain branches for the year 1910, although the force was reduced, as will be shown below. I refer specially to the preparation of the so-called final maps of the street system, which has been going on since May 29, 1903, when the tentative plan of the street system was adopted by the Board of Estimate and Apportionment. The designation "final maps" is really a misapplied term, as is demonstrated by the final maps, west of the Bronx river, which were filed in 1895 and have been amended in numerous places since that time. All energy was concentrated during 1910 to advance the sections of the final maps, east of the Bronx river, of which there are thirty-six (36) sections, numbered from twenty-nine (29) to sixty-five (65) inclusive. These final maps are sheets 32x52 inches in size, each covering about 400 acres and the street system is drawn on a scale of 150 feet to one inch, showing in detail, dimensions of streets, their grades and monuments.

Prior to 1910, eight (8) sections have been filed in accordance with the United States Triangulation, while during 1910, nine (9) sections were completed and sent to the Board of Estimate and Apportionment for adoption, as follows:

Section.	Forwarded.
30	January 24, 1910.
31	April 19, 1910.
32	January 21, 1910.
35	July 20, 1910.
36	August 4, 1910.
37	October 17, 1910.
40	November 15, 1910.
42	September 12, 1910.
43	October 6, 1910.

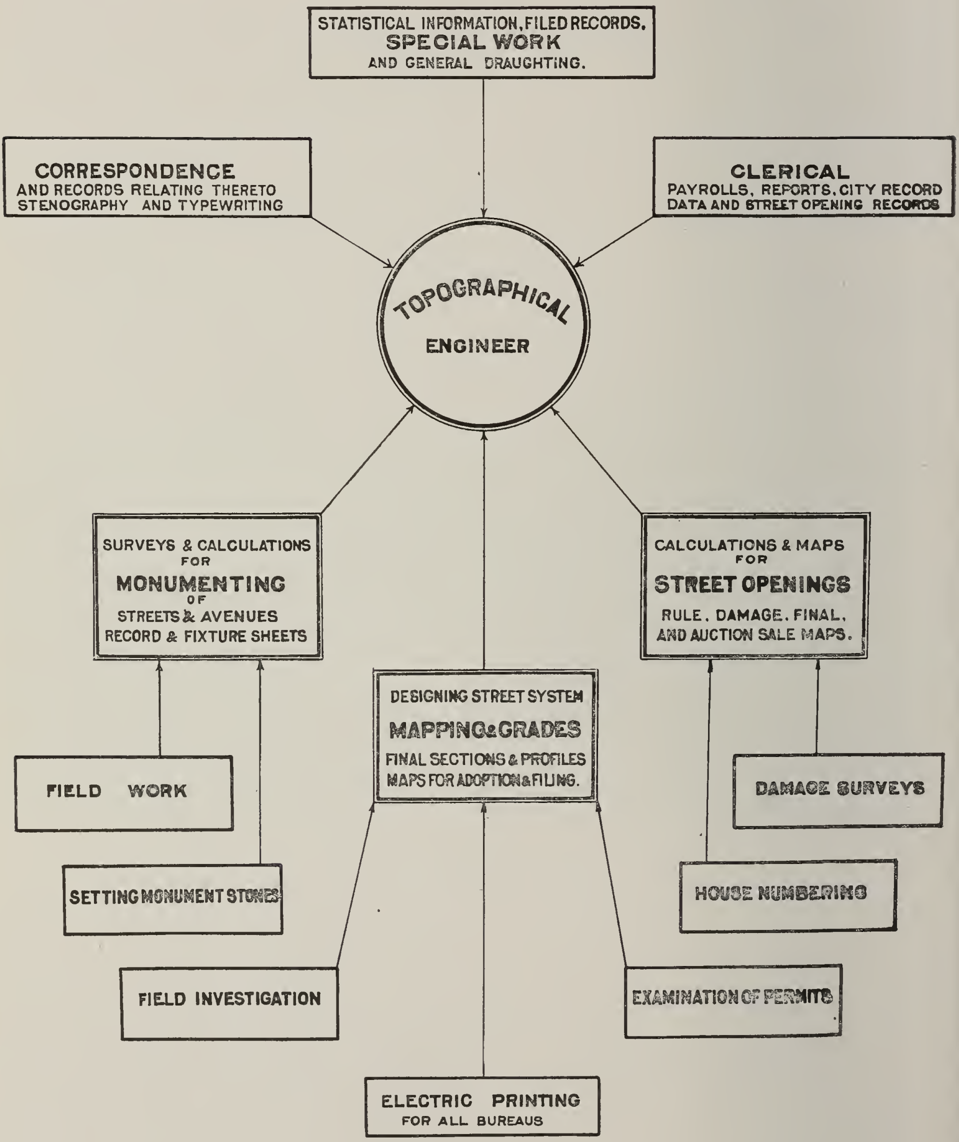
Sections 30, 31 and 32 were adopted by the Board of Estimate and Apportionment during 1910 and six (6) are, therefore, pending on December 31, 1910.

Sections 41, 44, 45, 46. 50, 51, 52 and 53 are well advanced.

Sections 55, 56, 57, 58, 59, 60 and 61 depend on the adoption of the tentative plan by the Board of Estimate and Apportionment; sections 62 and 63 (City Island) cannot be taken up until the property owners on the Island have come to an agreement.

The topographical survey and the triangulation of the Borough by the United States Coast and Geodetic Survey were completed during 1910 and additional surveying is constantly going on in connection with the monumenting, establishing of grades and street opening matters.

TOPOGRAPHICAL BUREAU.


STATISTICAL INFORMATION, FILED RECORDS. SPECIAL WORK AND GENERAL DRAUGHTING.
CORRESPONDENCE AND RECORDS RELATING THERETO STENOGRAPHY AND TYPEWRITING
CLERICAL PAYROLLS, REPORTS, CITY RECORD DATA AND STREET OPENING RECORDS
TOPOGRAPHICAL ENGINEER
SURVEYS & CALCULATIONS FOR MONUMENTING OF STREETS & AVENUES RECORD & FIXTURE SHEETS
CALCULATIONS & MAPS FOR STREET OPENINGS RULE. DAMAGE. FINAL. AND AUCTION SALE MAPS.
DESIGNING STREET SYSTEM MAPPING & GRADES FINAL SECTIONS & PROFILES MAPS FOR ADOPTION & FILING.
FIELD WORK
DAMAGE SURVEYS
SETTING MONUMENT STONES
HOUSE NUMBERING
FIELD INVESTIGATION
EXAMINATION OF PERMITS
ELECTRIC PRINTING FOR ALL BUREAUS

The monumenting of new streets, the referencing, the taking up and the resetting of old monuments in cases where they have been disturbd by the regulating, grading, paving and sewer construction, occupies more than one-third of the present force; if many contracts for improvements be undertaken during 1911, it is doubtful whether it is possible to keep up with the orders.

The establishing of grades, taking in consideration proper drainage and sewerage plans, is a most intricate work and requires considerable study; the work is advancing as fast as it is possible and keeps pace with the computation for street dimensions.

The examination of permits for crossing sidewalks and streets, for moving or altering old buildings and for erection of new ones, requiring very often surveys, is also assigned to the Topographical Bureau.

Over 1,300 communications were referred to the Topographical Bureau during 1910; the majority of them required maps, plans, studies and reports, which are enumerated in the resume of the work, as shown below.

The surveys, computations and maps relative to condemnation proceedings for acquiring title to streets have been promptly furnished when requested by Commissioners of Estimate and Assessments; the work confined itself mostly to proceedings which have been initiated prior to 1910, since only seven (7) new proceedings for acquiring title to avenues and streets were initiated by the Board of Estimate and Apportionment during 1910.

Considerable time is consumed by the Topographical Engineer and his assistants in giving information, explaining pending local board matters, etc., to outsiders who bring their grievances to this office.

The Topographical force during December, 1909, prior to the present Administration, consisted in the following employees: 1 Principal Assistant Topographical Engineer, 28 Assistant Engineers, 1 Assistant, 7 Transitmen, 4 Transitmen and Computers, 1 Computer and Draftsman, 1 Draftsman's Helper, 1 Mechanical Draftsman, 1 Architectural Draftsman, 3 Levelers, 3 Computers, 7 Draftsmen, 31 Topographical Draftsmen, 9 Rodmen, 6 Chainmen, 3 Chainmen and Rodmen, 5 Axemen, 1 Stenographer and Typewriter, 3 Clerks, 1 Assistant Foreman, 1 Sounder, 14 Laborers, 1 Attendant and 1 Driver, making a total of 116 monthly employees and 18 laborers.

At the conclusion of the year 1910, the force consisted of the following employees: 1 Principal Assistant Topographical Engineer, 21 Assistant Engineers, 6 Transitmen, 2 Transitmen and Computers, 1 Computer and Draftsman, 3 Computers, 6 Draftsmen, 21 Topographical Draftsmen, 1 Draftsman's Helper, 2 Levelers, 5 Rodmen, 6 Chainmen, 3 Chainmen and Rodmen, 3 Axemen, 1 Stenographer and Typewriter, 3 Clerks, 5 Laborers and 1 Driver, making a total of 85 monthly employees and 6 laborers, a reduction of 31 monthly employees and a reduction of 12 laborers.

This reduction was partially offset by the order given on January 10, 1910, that the office hours shall be from 9 to 5 in place of 9 to 4.

Resume of Office Work and Field Work.

A—Preparation of the Design of a Street System, Maps Showing Changes of Adopted Street Systems, etc.

Surveys, computations, block dimensions and grade studies were progressed during the year on those sections of the Final Maps of the Street System of that part of the Borough of The Bronx, lying easterly of the Bronx river, which were not filed as yet, and on those which had to be refiled on account of the completed triangulation.

Maps in eighty-one (81) cases were prepared and submitted for adoption during the year 1910.

Maps in thirty-two (32) cases were prepared in triplicate and forwarded for filing during the year 1910.

In connection with the laying out, etc., and preparing maps for adoption, the following additional work, in relation to computing and drafting was done westerly of the Bronx river: Property points calculated, 3; other points calculated, 36; monument co-ordinates calculated, 27; total length of final side and monument lines, 22,378 feet or 4.23 miles; courses checked by traverses, 73; length of traversed courses, 25,700 feet or 4.87 miles; length of streets involved, 4,800 feet or 0.913 miles.

B—The Actual Demarcation on the Ground by Monument Stones and Copper Bolts of the Lines of Adopted Avenues, Streets, Public Squares, Places, etc., and the Protection of the Same When Improvements Are Being Made.

During the year 1910, three hundred and forty-six (346) orders were received for setting, resetting, testing and accurately referencing monuments and one hundred and four (104) orders were brought over from 1909, making in all four hundred and fifty (450) orders.

Three hundred and eleven (311) orders of 1910 were attended to and seventy-nine (79) orders brought over from 1909, were also attended to, making in all three hundred and ninety (390) orders.

The following is a tabulated statement of the office work and field work in relation to monumenting during the year 1910:

Office Work.

Borough of The Bronx, West of the Bronx River.

Traverses worked up	155,041	feet
Monument instructions issued	106	
Monument co-ordinates calculated	38	
Total length of final side and monument lines	12,300	feet
Length of traversed courses	41,869	feet

Borough of The Bronx, East of the Bronx River.

Traverses worked up	167,105	feet
Monument instructions issued	708	
Monument co-ordinates calculated	2,366	
Total length of final side and monument lines	1,390,750	feet
Length of traversed courses	1,670,320	feet

Field Work.

Borough of the Bronx, West of the Bronx River

Points set	172	
Points re-set	356	
Accurately referenced	202	
Accurately measured	932,436	feet
Taped	299,622	feet
Monuments set	256	
Monuments re-set	249	
Monuments set to grade	114	
New monuments used	168	
Old monuments used	398	
Bolts used	53	
Iron boxes set	20	
Flags cut	141	

Borough of the Bronx, East of the Bronx River

Points set	805	
Points re-set	210	
Accurately referenced	183	
Accurately measured	630,875	feet
Taped	467,985	feet
Monuments set	453	
Monuments re-set	89	
Monuments set to grade	10	
New monuments used	397	
Old monuments used	126	
Bolts used	29	
Iron boxes set	2	
Flags cut	48	

C—The Making of Surveys, Searches, Maps, Technical Descriptions, Profiles, etc., for the Commissioners of Estimate and Assessment in the Matter of Acquiring Title by the City to Avenues, Streets and Other Public Property.

This work consists of making (a) rule maps, (b) surveys for damage maps, (c) draft damage maps, (d) draft benefit maps, (e) final copies of damage and benefit maps, (f) franchise maps, (g) profiles of avenues and streets, (h) inspection and testimony and (i) auction sale maps.

("a") Rule maps, in quadruplicate, were prepared and forwarded with technical descriptions, in triplicate, in twenty-four (24) street opening proceedings for forty-two (42) streets.

("b") Damage Map Surveys were made in forty streets.

The amount of work which was done and completed on the above surveys is as follows: 615 houses, 1,413 fences and 142 stone walls were located; 101,693 linear feet of avenue chained, 378,315 feet taped in location and cross-section measurement and 2,248 angles turned.

("c") Draft Damage Maps, in triplicate, were prepared and forwarded in twenty-eight (28) proceedings, comprising 2,450 plots, covering 8,429,307.42 square feet or 3,391.723 city lots, on forty-four (44) streets or parts of streets.

("d") Draft Benefit Maps were prepared and forwarded in thirty-eight (38) proceedings covering 19,364 plots for fifty-nine (59) streets.

("e") Final copies of damage maps, in triplicate, and benefit maps, in quadruplicate, were forwarded in thirty-eight (38) proceedings, comprising 1,554 maps.

("f") No franchise maps were requested during the year 1910.

("g") Profiles, in duplicate, showing the present surfaces of the street at their centre and house lines, and their relation to the intended regulation as well as to any previously established grades, giving the dates of the establishment of the grades as well as the authority under which they were established, were made for forty-four (44) avenues and streets, and surveys for forty (40) avenues and streets in street opening proceedings were made.

("h") During the past year, considerable time of the Assistant Engineer in charge of the Street Opening matters, was consumed in giving testimony before the Commissioner of Estimate and Assessment, and of the Assistant Engineer in charge of Grades before the same Commissioners of Estimate and Assessments and the Change of Grade Damage Commission.

("i") Maps and catalogues of the buildings and encroachments on avenues and streets, to which the city has acquired title, were prepared and forwarded in thirteen (13) streets.

D—To Keep in Custody the Record and Maps of All Matters Pertaining to Work under the Jurisdiction of the Topographical Bureau; also Keep in Custody all Maps Filed in Relation to the Borough of The Bronx under the Department of Public Parks, the Commissioner of Street Improvements of the 23d and 24th Wards and the President of the Borough of The Bronx.

During the year 1910, the following maps, which were ordered to be filed by the Board of Estimate and Apportionment, were deposited in the vault of the Topographical Bureau:

1. Modified plan of drainage, showing location, size and grades of sewers in Sewerage District No. 37-D2; date of filing, January 11, 1910.
2. Modified plan of drainage, showing location, sizes and grades of sewers in Sewerage Districts No. 43-1 and 43-D1; date of filing, January 11, 1910.
3. Modified plan of drainage, showing location, sizes and grades of sewers in Sewerage District No. 43-2; date of filing, January 11, 1910.
4. Modified plan of drainage, showing location, sizes and grades of sewers in Sewerage District No. 36-X; date of filing, January 11, 1910.
5. Map or plan showing the lines and grades of West 180th street from Osborne place to Aqueduct avenue, the adjustment of adjoining streets and the change of grades of intersecting streets and avenues affected thereby; date of filing, February 3, 1910.
6. Map or plan showing the change of the Street System and the grades within the territory bounded by West 236th street, Waldo avenue, West 242d street and Broadway; date of filing, February 8, 1910.
7. Map or plan showing the change of the grade of East 222d street from Boston road to Baychester avenue; date of filing, February 8, 1910.
8. Map or plan showing the locating, laying out and the grades of the streets within the area, bounded by Bronxdale avenue, White Plains road, Bronx and Pelham Parkway, and Williamsbridge road and the line of the New York, New Haven and Hartford Railroad; date of filing, February 8, 1910.
9. Map or plan showing the change of grade of West 230th street, between Riverdale avenue and Broadway; of Tibbett avenue between West 231st street and Spuyten Duyvil creek, and of Corlear avenue between West 230th street and West 231st street; date of filing, April 7, 1910.

10. Map or plan showing the locating and laying out of West 193d street between Bailey avenue and Heath avenue; date of filing, April 7, 1910.

11. Map or plan changing the grades of Grand avenue between Tremont avenue and West 180th street and of Burnside avenue between Harrison avenue and Davidson avenue; date of filing, April 7, 1910.

12. Map or plan showing the change of grades of the street system lying within the territory bounded by Digney avenue, Bussing avenue, Grace avenue, Strang avenue and East 233d street, and changing and establishing grades within the territory bounded by DeReimer avenue, Bussing avenue, Seton avenue and Strang avenue; date of filing, April 7, 1910.

13. Modified plan of drainage showing location, sizes and grades of sewers in Sewerage Distrist No. 42-C-2; date of filing, April 7, 1910.

14. Map or plan showing the change of line and the grades of Barretto street from Lafayette avenue to Garrison avenue; date of filing, April 7, 1910.

15. Modified plan of drainage showing location, sizes and grades of sewers in Sewerage District No. 33-V-4; date of filing, April 7, 1910.

16. Map or plan showing the change of lines of Pelham avenue between Webster avenue and Park avenue; date of filing, April 7, 1910.

17. Plan and profile showing the change of grades of East 167th street between Webster avenue and Washington avenue; Brook avenue between East 166th street and East 168th street, and of Park avenue between East 166th street and East 168th street; date of filing, April 21, 1910.

18. Plan of drainage showing location, sizes and grades of sewers in Sewerage District No. 43-F; date of filing, May 26, 1910.

19. Map or plan showing the change of grade of Bronx Park East, between Pelham Parkway North and Thwaites place, and of Pelham Parkway North between Bronx Park East and Barker avenue; date of filing, May 26, 1910.

20. Modified plan of drainage showing location, sizes and grades of sewers in Sewerage District No. 33-X-4; date of filing, May 26, 1910.

21. Map or plan showing the locating, laying out and the grades of St. Paul avenue, between Westchester avenue and Bronx and Pelham Parkway; date of filing, July 25, 1910.

22 Plan and profile showing the locating and laying out and the grades of Morton place between Aqueduct avenue and Harrison avenue; date of filing, July 25, 1910.

23. Map or plan showing the change of grades in West 190th street between Webb avenue and Aqueduct avenue; date of filing, July 25, 1910.

24. Plan of drainage showing location, sizes and grades of sewers in Sewerage District No. 45; date of filing, July 25, 1910.

25. Map or plan showing the laying out of West 179th street between the easterly line of the New York and Putnam railway and Exterior street; reduction of width and establishing of the grades of Exterior street between West 179th street and the southern property line of the New York Central and Hudson River Railroad; the laying out of an unnamed street between Exterior street and the United States Pier and Bulkhead line of the Harlem river along the southern property line of the New York Central and Hudson River Railroad; the discontinuing of Exterior street between the proposed unnamed street and the approach to the University Heights Bridge; discontinuing of the Public Place between Exterior street and the United States Pier and Bulkhead line of the Harlem river; the discontinuing of two unnamed streets, southerly and northerly of the discontinued Public Place; date of filing, July 25, 1910.

26. Map or plan showing the change of grades of the street system adjoining the right of way of the New York, Westchester and Boston Railway between East 132d street and Jennings street; date of filing, July 25, 1910.

27. Plan and profile showing the change of grades in Casanova street between Randall avenue and Spofford avenue; date of filing, July 25, 1910.

28. Modified plan of drainage showing location, size and grades of sewers in Sewerage District No. 33-P4; date of filing, July 25, 1910.

29. Modified plan of drainage showing location, sizes and grades of sewers in Sewerage District No. 39-V; date of filing, July 25, 1910.

30. Map or plan showing the change of grade in Broadway between West 230th street and West 231st street; date of filing, November 1, 1910.

31. Map or plan showing the change of line and the grades of West 230th street between Bailey avenue and Heath avenue; date of filing, November 1, 1910.

32. Map or plan showing the extension and the grades of Carpenter avenue from East 242d street to the northern boundary of the City of New York; date of filing, November 1, 1910.

33. Map or plan showing the change of the easterly line of Aqueduct avenue, east, between a point 62.494 feet northerly of Clinton place and a point 133.72 feet southerly of West 184th street; date of filing, November 1, 1910.

34. Map or plan showing the change of Street System within the area bounded by Riverdale avenue, West 238th street, Waldo avenue, West 236th street, Spuyten Duyvil road and West 234th street; date of filing, November 1, 1910.

35. Map or plan showing the change of grades in Throg's Neck Boulevard from East 177th street to Schley avenue, and from Barkley avenue to Eastern Boulevard, and in Eastern Boulevard from Throgg's Neck Boulevard to Edison avenue and of the intersecting avenues and streets affected thereby; date of filing, December 13, 1910.

36. Plan and profile showing the locating and laying out and the grade of unnamed street from Longfellow avenue to Whitlock avenue between Bancroft street and Westchester avenue; date of filing, December 13, 1910.

37. Map or plan showing the closing of Boston road and Lydig avenue west of Bronx Park East as previously laid out; of Bronx Park East between Pelham Parkway North and Boston road and the locating, laying out and the grades of Bronx Park East connecting Bronx Park East north of Bronx and Pelham Parkway with Bronx Park East south of Bronx and Pelham Parkway; date of filing, December 13, 1910.

38. Modified plan of drainage showing location, sizes and grades of sewers in Sewerage District No. 37-E-2; date of filing, December 13, 1910.

39. Modified plan of drainage showing location, sizes and grades of sewers in Sewerage District No. 38-X; date of filing, December 13, 1910.

40. Plan of drainage showing location, sizes and grades of sewers in Sewerage District No. 43-K and Modified Plan of Drainage showing location, sizes and grades of sewers in Sewerage District No. 43-B-1; date of filing, December 13, 1910.

41. Plan of drainage for receiving basins located at the southeast corner Morris Park avenue and Wallace avenue; southeast corner Morris Park avenue and Cruger avenue; northeast corner Morris Park avenue and Cruger avenue; northwest corner of Morris Park avenue and Amethyst street; southeast corner of Morris Park avenue and Fillmore street; date of filing, December 13, 1910.

42. Modified plan of drainage showing location, sizes and grades of sewers in Sewerage District No. 39-T; date of filing, December 13, 1910.

43. Plan and profile showing the discontinuing of the Transverse road in East 165th street between Walton avenue and Sherman avenue and changing the grades of East 165th street between the Grand Boulevard and Concourse and Sheridan avenue, and of Carroll place between East 165th street and East 166th street; date of filing, December 13, 1910.

44. Map or plan showing the change of grades in Seneca avenue between Faile street and Longfellow avenue; date of filing December 13, 1910.

45. Map or plan showing the changes of grades in the territory bounded by Tiffany street, Eastern Boulevard, Faile street, East Bay avenue, Bryant avenue, Viele avenue, Faile street and the East River; date of filing December 13, 1910.

E—To Make Examinations, Maps and Reports on Miscellaneous Matters Referred by the Chief Engineer of Sewers and Highways.

During the year 1910, 1,330 communications were referred for report to the Topographical Bureau by the Chief Engineer of Sewers and Highways and the Secretary of the President of the Borough of The Bronx, and 1,201 reports and letters were required to be written on these subjects.

F—House Numbering in The Bronx.

A complete system of house numbers was established in 1906. The occupants or owners of all the houses in the Borough have been notified of the new number of their houses.

A map showing the house numbers for the Borough of The Bronx was prepared and photo-lithographed for distribution.

A record of the new house numbers is kept in atlases on file in the Topographical Bureau.

New buildings are erected and requests for house numbers are made for same, new numbers being assigned. A record of all these assigned house numbers are also kept in atlases on file.

G—Examinations of Permits, Information, Compilations and Miscellaneous Matters.

Permits issued by the Department of Water Supply, Gas and Electricity and by the Superintendent of Highways for the opening of streets for water taps, gas and sewer connections and for crossing the sidewalks for excavating, laying new sidewalks and for openings for poles and trees, were examined in relation to their interference with the street monuments, and in case this occurred a $25 bond was required.

1. Number of permits recorded and examined	7,173
2. Number of permits held for $25 bond	142
3. Number of permits cancelled where bond has been exacted	89

Location plans of buildings submitted by the Bureau of Buildings were examined in relation to encroachments on land to be taken for street purposes.

1. Number of plans for new buildings	1,319
2. Number of plans for altering old buildings	605

Local plans of buildings submitted by the Superintendent of Highways for moving of buildings to new locations were examined in relation to encroachments on land to be taken for street purposes.

1. Number	56

In addition to the examination in the office, surveys had to be made to ascertain if the foundations of buildings were in the location as described in the submitted application for permit.

1. Number	17

H—Miscellaneous.

Compilations of dates of filing grades and vesting of titles to eighty (80) avenues and streets were furnished to the Bureau of Highways.

Compilation of grades of fifty-nine (59) avenues and streets were made for the use of the Board of Assessors.

Maps or plans showing the laying out, dimensions and grades of avenues and streets, submitted by the Bureau of Design, were examined and corrected where necessary in one hundred and seventy-seven (177) cases.

Atlasses of the final maps of the Borough of The Bronx, west of the Bronx River, have been corrected from time to time as changes therein have been filed, such atlasses being in the various offices of the President of the Borough of The Bronx.

The maps in the vault of the Topographical Bureau are being indexed and cared for and the dates of the topographical surveys compiled and recorded on the topographical sheets.

The tax map volumes of the Borough of The Bronx, which are kept on file in the Topographical Bureau, are examined and compared from time to time with those in the Department of Taxes and Assessments.

During the year 1910, fifteen (15) claims for damages before the Change of Grade Commission were examined and reported upon as follows: Under what authority, laws, etc.; date of filing of grades; when the streets were regulated and graded; at what day the work of grading was begun and when finished or accepted; date of vesting of title and confirmation of same, etc.

Fifty-five (55) streets or portions of streets were ceded or title vested in the City during the year 1910, covering 85,608 feet, or 16.213 miles.

During the year 1910, 5,014 blueprints and blackprints were made for the Topographical Bureau, the Bureau of Highways, Bureau of Sewers and the Bureau of Design.

Many maps, sketches, tracings, blackprints and blueprints were made auxiliary to preparing maps for adoption and in connection with various other works under the jurisdiction of the Topographical Bureau; also a considerable amount of copying and searching of records in the different City departments and the Register's Office of New York City and Westchester County at White Plains.

Considerable amount of work is incurred in making out the monthly returns to the Corporation Counsel's office, as provided by section 980 of the Greater New York Charter, revised, as amended by chapter 394 of the Laws of 1909, which section provides that a monthly return be forwarded to the Corporation Counsel, verified by the Borough President, showing the names of persons employed, and the number of hours occupied by them in the preparation of maps relating to proceedings for acquiring title to avenues, streets, etc., and the dates of the days of each month so occupied, their respective salaries, the amount of such salary apportioned to the expense thereof in each proceeding.

Charges were made to eighty-seven (87) proceedings.

An office to give general information to the public having been established by the President of the Borough of The Bronx in the Municipal Building, many inquiries which come to this Bureau were attended to by the Topographical Bureau. An accurate account of the number of cases could not be kept.

The weekly payroll, in duplicate, of the Laborers, etc., assigned to the Topographical Bureau, is prepared every week.

The payroll, in triplicate, of the Engineers, Draftsmen, etc., is prepared at the end of each month and all the newly established service records of every employee have to be examined and compared with the weekly rports of work.

Respectfully, F. GREIFFENBERG, Topographical Engineer

City of New York, President of the Borough of The Bronx, Third Avenue and 177th Street, March 16, 1911.

Hon. Cyrus C. Miller, *President of the Borough of The Bronx:*

Dear Sir—The provisions of the bill submitted to the Legislature by you amending the Greater New York Charter with regard to street pavements, which became a law on June 20, 1910, has made it possible to lay a medium-priced pavement on streets where the value of the abutting property is not sufficient to warrant an assessment for a high-priced first-class pavement. Therefore, it was deemed advisable to lay a number of sections of medium-priced pavements on the White Plains road experimental roadway that would come under the head of Class B Pavements as provided for in the act amending the Greater New York Charter referred to above:

The following is a description of the White Plains road experimental pavements. (Proceedings of the American Society of Civil Engineers, Vol. XXXVII., No. 3, pp. 368, 376, 394 (March, 1911).

"The White Plains road experimental pavements consist of eighteen sections, ranging in length from 100 feet to 350 feet, with a width of 21 feet. Fourteen of these sections comprise the Bituminous Pavement Group, two of which consist of a wearing surface of broken stone and sand with an asphaltic binder, built by the mixing method and laid on a concrete foundation. The wearing surfaces of twelve sections were laid on a broken stone foundation, five built by the penetration and seven by the mixing method. In all but one section built by the mixing method the stone was heated. The remaining four are made up as follows: Hassam Portland Cement Concrete Pavement, Water Bound Macadam, Sicilian Asphalt Company's Asphalto, which in appearance resembles ground Kentucky Rock Asphalt, and a Surface Application of Asphalt Binder and Sand on an old Macadam Strip. In all but one section, where paving gravel was used in the wearing surface, the stone, both for foundation and wearing surface, was Clinton Point Crushed Trap Rock.

"These experiments were made with a view to determining, by a service test, a suitable medium-priced pavement for suburban residential streets, and also a cheaper grade of pavement for country roads and parkways, where the constantly increasing automobile traffic has made it imperative to lay something better than a water bound macadam pavement which it has been clearly demonstrated will not stand up under automobile traffic. Therefore, it is to be hoped that the information obtained through observation of these experiments will be of value, both from an engineering as well as an economic point of view, as the maintenance cost of water bound macadam subjected to automobile traffic is appalling, and consequently it will be necessary in future to construct a pavement where, even though the initial cost may be a little higher, the maintenance will be very much lower.

"Accurate cost data has been kept of the construction of the various sections, and cost data will also be kept of the maintenance.

"An analysis has been made of the bituminous binders used, by the United States Office of Public Roads, in accordance with their methods of testing bituminous binders, and also by chemists in accordance with the recommendations of the Special Committee of the American Society of Civil Engineers on Bituminous Materials for Road Construction. Levels have been taken which will make it possible to ascertain the amount of wear at any time.

"White Plains road is a wide thoroughfare extending northeasterly through the northerly section of the Borough of The Bronx to Mount Vernon, and on toward White Plains. The experimental roadway is laid on the east side of the road, and extends from the intersection of White Plains avenue and Boston road to Burke street, a distance of 4,120 feet. The maximum grade is 1 per cent. and the crown ⅜ inch to 1 foot. No streets intersect White Plains road between Boston road and Burke street; therefore, all the sections will be subjected to the same amount of traffic, of which a careful census will be taken from time to time. A double-track electric railway runs along White Plains avenue, and the pavement is carried up to the outside girder rail of the track.

"The water bound macadam section was laid as a basis of comparison, both with regard to wear and cost of construction, as the cost of experimental work of this character where the sections are short and all differ in methods of construction is necessarily high, as the organization is hardly perfected and making satisfactory progress before the section is completed, so it may be safe to assume that the excess cost of the water bound macadam may be used to determine the percentage to be deducted from the actual cost of any other section, in order to ascertain its normal cost.

"Work on the experimental road was begun on September 29, 1910, and was completed on November 22, 1910. The number of sections under construction at the same time ranged from two to nine. It will be observed from the lateness of the season and daily record of the temperature taken during the period of construction, that the work was not done under the most favorable conditions. The temperature when the work was in progress varied from 40 degrees to 79 degrees, the average being 57 degrees. It was thought, however, better to make a start and finish this season than wait about nine months for more perfect conditions.

"It is to be observed that the labor item is somewhat high, even for experimental work of this character. This, however, may be partially attributed to the fact that the nature of the work was entirely new to the foreman, as well as the men; consequently, this should be taken into consideration in the progress made in square yards per day laid.

"There are several points which stand out in evidence in connection with the work that it may be worth while noting, namely, the comparatively low cost of Section 5, where the binder was mixed with cold stone in a concrete mixer; the high cost per square yard for fuel where the stone was heated; the additional cost per square yard for mixing tax and asphalt; the excess of binder used in the seal coat of several sections; the high cost of handling the Amiesite pavement, due entirely to the paving mixture being stiff—owing to the cold weather; the difference in the cost of the concrete foundations laid by the mixing method and by process of spreading cement and screenings mixed, sprinkling and rolling, as in water bound macadam; the high cost of labor, namely, .054 per square yard, for spreading and rolling the broken stone foundation course, due to rehandling material.

"In conclusion, I might add that this work was undertaken primarily with a view to trying out the various bituminous binders and paving mixtures, as it has been conceded for some time past that the methods of construction used on White Plains road, both for penetration work and the mixing method, were rather crude, and unless a suitable pressure machine is used for penetration work which will insure an equal distribution of bituminous binder, and an economical mixer for heating and mixing the stone and bituminous binder, and thereby decrease the labor cost, the cost of work of this character, employing methods of construction similar to those employed on the greater number of sections on White Plains road, will be unnecessarily high, in comparison with the cost of water bound macadam. The method of construction, therefore, should be taken into consideration in comparing the relative cost of the various sections with the water bound macadam. At a later date sections of the pavements will be cut out and an examination of the same made by the Office of Public Roads, United States Department of Agriculture.

"Respectfully, WILLIAM H. CONNELL, Assistant Commissioner of Public Works."

The following is a description of the methods of construction and binders used in the various sections, with the unit cost per square yard of the same. Also daily record of the temperature and traffic census report:

WHITE PLAINS AVENUE EXPERIMENTAL PAVEMENTS.

SECTION ONE—0 + 00 TO 3 + 25.

Bituminous Pavement Mixing Method Laid by the Barber Asphalt Company.

Foundation Course—A concrete foundation was laid to a finished depth of 4½ inches in proportions of 1-3-6.

Surface Course or Paving Mixture—The paving mixture consists of the following mineral aggregate by weight: 73 per cent. gravel, 19½ per cent. sand, 1½ per cent. dust, and 5.4 per cent. Bermudez asphalt, 55 penetration. The mixing was done at the Barber asphalt plant, then laid at a temperature of 220 degrees and rolled to a finished depth of 1¾ inches with a ten-ton roller.

Seal Coat—From 0 + 00 to 1 + 52, ¼ gallon, of asphaltic cement to the square yard was applied, over which sand was spread.

COST PER SQUARE YARD.

Concrete Foundation	$0.639
Surface Course	0.715
Seal Coat	0.085
	$1.439

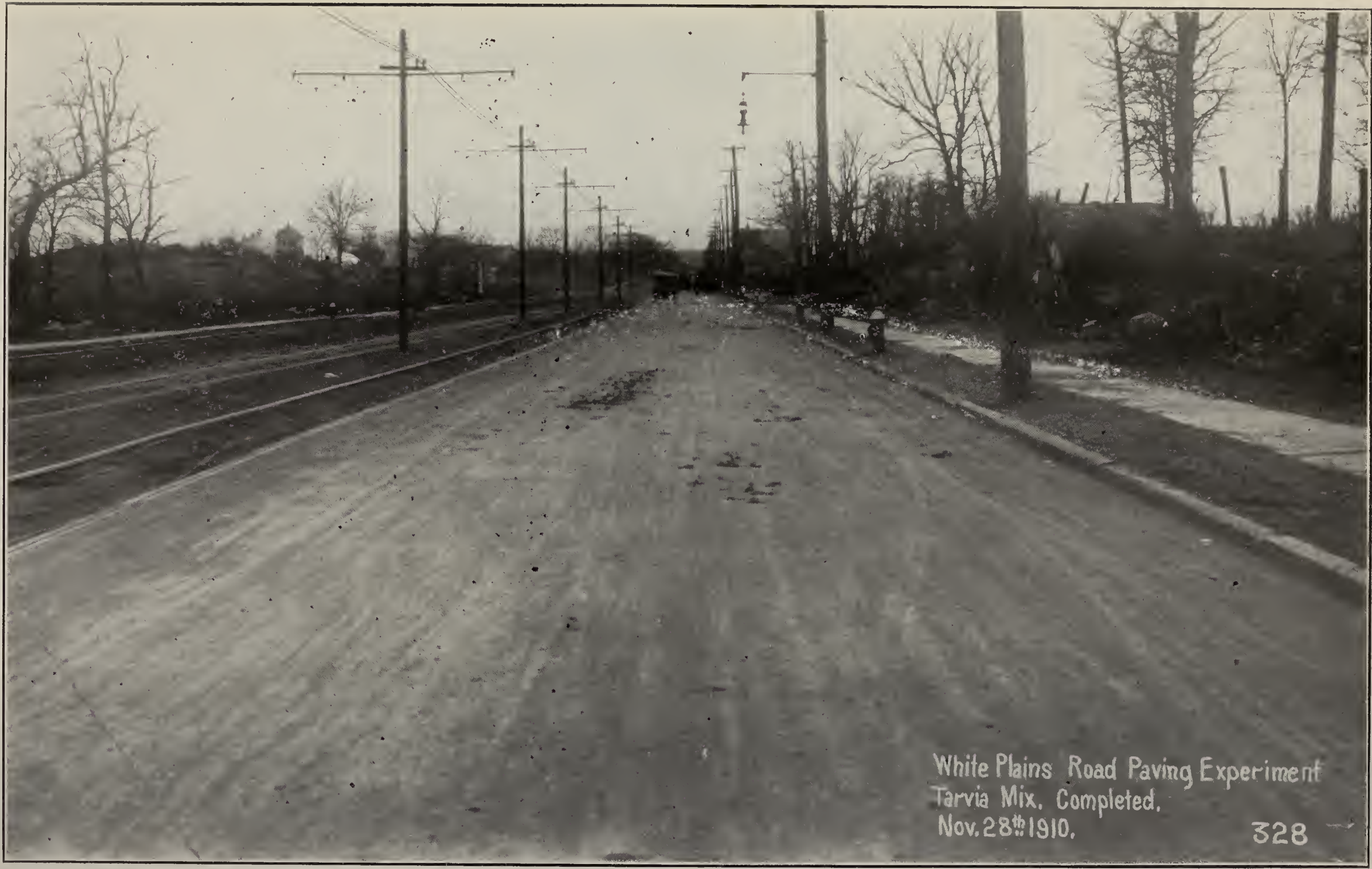
DETAILED COST PER SQUARE YARD.

Concrete Base—4½ inches thick.

		Per Sq. Yd.
Labor	$168 00	$0.219
1½-inch trap rock, 86 cubic yards, at $1.65	141 90	0.185
Sand, 43 cubic yards, at $1.21	52 03	0.068
Cement, 95 barrels, at $1.35	128 25	0.167
767 square yards, at $0.639	$490 18	$0.639

LABOR.

	No.	Hours.	Rate.	
Foreman	1	24	$5 00	$15 00
Laborers	22	528	1 75	115 50
Watchmen	2	48	1 75	10 50
Timekeeper	1	24	3 00	9 00
Team	1	24	6 00	18 00
				$168 00



White Plains Road Experimenting Roadway Completed, Looking South.

SURFACE COURSE.

Cost about 71½ cents per square yard. Estimated from cost of Bronx, 55 degrees penetration, deducting $27 for difference in cost of gravel and trap rock.

FIELD LABOR.

	No.	Hours.	Rate.	
Foreman	1	8	$5 00	$5 00
Laborers	12	96	1 75	21 00
Watchman	1	8	1 75	1 75
Tampers	4	32	2 50	10 00
Rakers	3	24	2 50	7 50
Smoothers	2	16	2 00	4 00
Rollerman	1	8	4 50	4 50
Timekeeper	1	8	3 00	3 00
767 square yards. at $0.074.................				$56 75

SEAL COATS.

		Per Sq. Yd.
Labor	$9 22	$0.026
Chips, 5 cubic yards, at $1.90...	9 50	0.027
Binder, 89 gallons, at $0.131..	11 66	0.032—.248 gals. per sq. yd.
359 square yards, at $0.085	$30 00	......

LABOR.

	No.	Hours.	Rate.	
Foreman	1	4	$5 00	$2 50
Pouring Asphalt	2	6	2 25	1 68
Squegee	1	3	2 25	84
Heating Asphalt	1	3	2 25	84
Carrying Asphalt	2	6	2 25	1 68
Spreading Chips	2	6	2 25	1 68
				$9 22

Actual time for laying surface course, eight hours, or an average of 767 square yards per day.
Actual time for laying seal coat, three hours, or an average of 957 square yards per day.

WHITE PLAINS AVENUE EXPERIMENTAL PAVEMENTS.

SECTION TWO—3 + 25 TO 6 + 50.

Bituminous Pavement Mixing Method Laid in Accordance with Borough of The Bronx Specifications.

Foundation Course—1½-inch crushed trap rock was spread and thoroughly rolled with an eighteen-ton roller to a finished depth of about 3¾ inches.

Surface Course or Paving Mixture—The paving mixture is composed of two parts crushed trap rock passing through a 1¼-inch ring and not containing more than 5 per cent. dust, one part sand and 7.4 per cent. by weight of Bermudez asphalt 55 penetration. The mixing was done at an asphalt plant and the paving mixture laid at a temperature of 220 degrees and rolled to a finished depth of 2½ inches with a ten-ton roller.

Seal Coat—From 3 + 25 to 4 + 78, ¼ gallon of asphaltic cement to the square yard was applied, over which chips were spread and rolled.

COST PER SQUARE YARD.

Case Course	$0.283
Surface Course	0.751
Seal Coat	0.081
[illegible]	$1.115

DETAILED COST PER SQUARE YARD.

Base 3¾ inches thick.

		Per Sq. Yd.
106.4 cubic yards Trap Rock, at $1.65	$175 56	$0.229
Labor		0.054
		$0.283

SURFACE COURSE.

		Per Sq. Yd.	
Mixing at plant	$110 48	$0.144	
Labor Field	51 25	0.067	
Hauling	93 84	0.122	
Asphalt Cement, 1,600 gallons, at $0.131	209 60	0.273	—2.09 gals. per sq. yd.
¾-inch Trap Rock, 54 cubic yards, at $1.25	67 50	0.088	
Sand, 30½ cubic yards, at $0.75	22 87	0.030	
Dust, 2,760 pounds, at $3.50	4 83	0.006	
Grit, 3 cubic yards, at $1.25	3 75	0.005	
Coal, 8,030 pounds, at $3.00	12 05	0.016	
767 square yards at $0.751.	$576 17	$0.751	

FIELD LABOR.	No.	Hours.	Rate.	
Foreman	1	8	$5 00	$5 00
Laborers	8	64	1 75	14 00
Watchmen	3	24	1 75	5 25
Tampers	4	32	2 50	10 00
Rakers	3	24	2 50	7 50
Smoothers	1	8	2 00	2 00
Rollerman	1	8	4 50	4 50
Timekeeper	1	8	3 00	3 00
767 square yards, at $0.067				$51 25

SEAL COAT.

		Per Sq. Yd.	
Labor	$9 52	$0.026	
Chips, 3 cubic yards, at $1.90	5 70	0.016	
Asphalt Cement, 95 gallons, at $0.13	12 35	0.035	—0.26 gals. per sq. yd.
Wood, ¼ cord, at $6.50	1 62	0.004	
361 square yards, at $0.081.	$29 19	$0.081	

LABOR.	No.	Hours.	Rate.	
Heating Asphalt	1	11	$1 75	$2 38
Pouring Asphalt	1	11	1 75	2 38
Spreading Chips	2	22	1 75	4 76
				$9 52

Actual time for laying surface course, eight hours, or an average of 767 square yards per day.

WHITE PLAINS AVENUE EXPERIMENTAL PAVEMENTS.

SECTION THREE—6 + 50 TO 8 + 00.

Foundation Course—A concrete base was laid under the supervision of C. I. Williams, of Utica, N. Y., to a finished depth of 4¾ inches, 1½-inch stone was spread to a depth of 6 inches then screenings and cement mixed dry in proportions of 3-1 were spread, rolled, and sprinkled with water, the operation was repeated until the voids were filed. An eighteen-ton roller was used.

Paving Mixture or Surface Course—The paving mixture is composed of two (2) parts crushed trap rock passing through a 1¾-inch ring and not containing more than 5 per cent. dust, 1 part sand, and 8 per cent. Bermudez asphalt, 55 penetration. The mixing was done at an asphalt plant and the paving mixture was laid at a temperature of 220 degrees and rolled to a finished depth of 2 inches with a ten-ton roller.

Seal Coat—The surface coat was painted with about ¼ of a gallon of asphaltic cement to the square yard, over which chips were spread and rolled.

COST PER SQUARE YARD.

Concrete Foundation	$0.502
Surface Course	.90
Seal Coat	.08
	$1.482

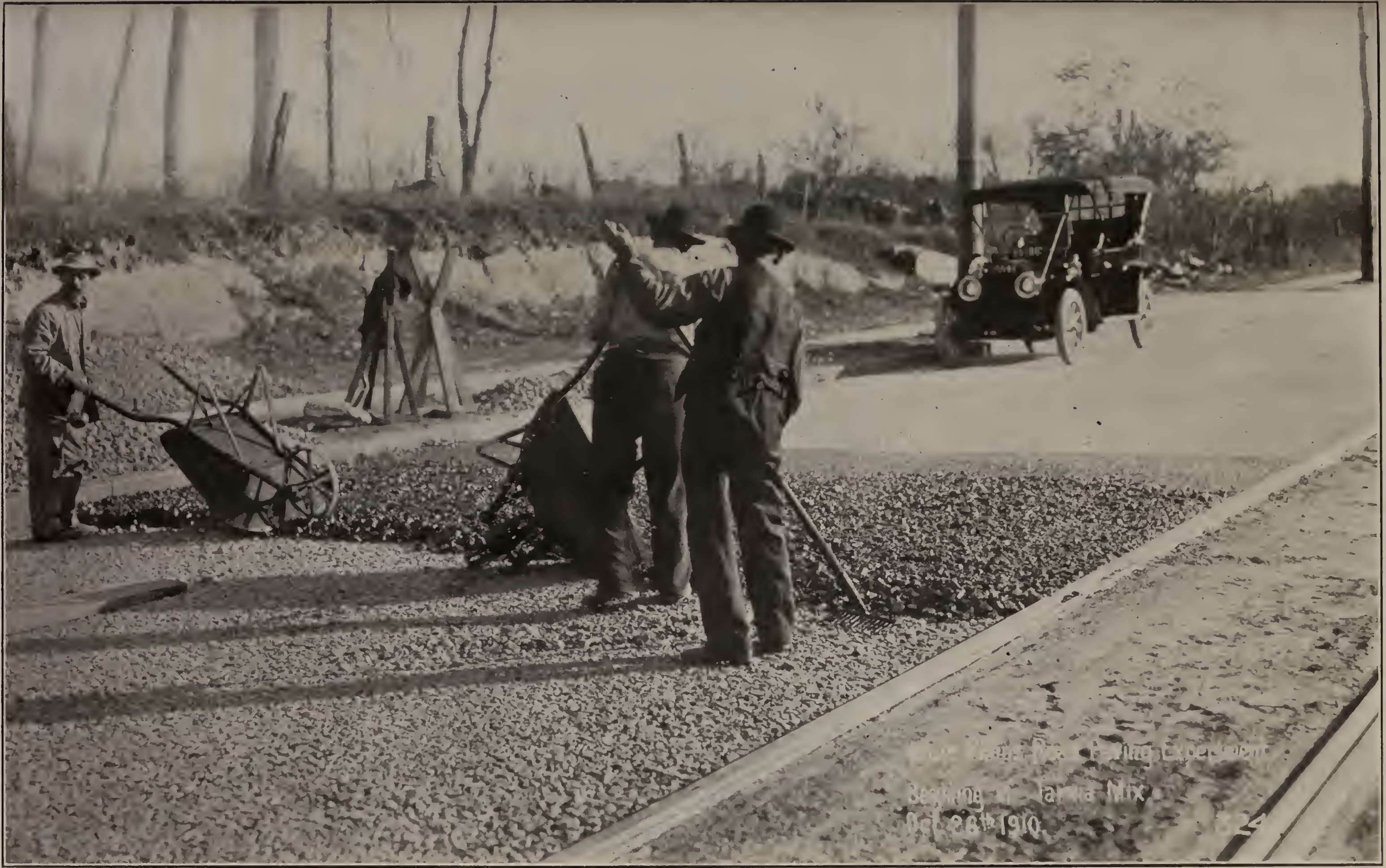
DETAILED COST PER SQUARE YARD.

Concrete Base—4¾ inches to 5 inches.

		Per Sq. Yd.
Labor	$19 96	$0.056
1½-inch trap rock, 59 cubic yards, at $1.65	97 35	0.275
Screenings, 9.0 cubic yards, at $1.65	14 85	0.042
Cement, 20¼ barrels, at $1.35	27 34	0.077
354 square yards, at $0.45	$159 50	$0.450
Spreading 1½-inch stone		0.054
Total		$0.504

LABOR.

	No.	Hours.	Rate.	
Foreman	1	9	$4 00	$4 50
Laborers	5	43	2 25	12 09
Rollerman	1	6	4 50	3 37
				$19 96



SPREADING PAVING MIXTURE.

SURFACE COURSE.

		Per Sq. Yd.
Mixing at Plant	$105 14	$0.297
Labor, Field	32 06	0.090
Hauling	40 80	0.115
Asphalt Cement, 742.5 gallons, at $0.13	96 52	0.273— 2.1 gals. per sq. yd.
Trap Rock, 22.5 cubic yards, at $1.25	28 12	0.079
Sand, 9.0 cubic yards, at $0.75	6 75	0.020
Dust, 1,440 pounds, at $3.50.	2 52	0.008
Coal, Soft, 5,300 pounds at $3.00	7 95	0.022
Coal, Hard, 400 pounds, at $6.00	1 20	0.003
354 square yards, at $0.907	$321 06	......

FIELD LABOR.	No.	Hours.	Rate.	
Foreman	1	6	$5 00	$3 75
Laborers	8	48	1 75	10 50
Watchman	1	6	1 75	1 31
Tampers	2	12	2 50	3 75
Rakers	3	18	2 50	5 62
Smoothers	1	6	2 00	1 50
Rollerman	1	6	4 50	3 38
Timekeeper	1	6	3 00	2 25
354 square yards, at $0.090				$32 06

SEAL COAT

		Per Sq. Yd.
Labor	$8 80	$0.025
Chips, 3 cubic yards, at $1.90	5 70	0.016
Asphalt Cement, 82.5 gallons, at $0.13	10 72	0.030— .23 gals. per sq. yd.
Wood, ½ cord, at $6.50	3 25	0.010
354 square yards, at $0.080	$28 47	......

LABOR.	No.	Hours.	Rate.	
Heating Asphalt	1	6	$1 75	$1 31
Pouring Asphalt	2	12	1 75	2 62
Spreading Chips	2	12	1 75	2 62
Timekeeper	1	6	3 00	2 25
354 square yards, at $0.025				$8 80

Actual time for laying surface course, five hours, or an average of 454 square yards per day.

WHITE PLAINS AVENUE EXPERIMENTAL PAVEMENTS.

Section Four—8 + 00 to 11 + 25.

Bituminous Pavement Mixing Method Laid Under the Supervision of the Standard Oil Company.

Foundation—1½-inch crushed trap rock was spread and thoroughly rolled with an eighteen-ton roller to a finished depth of about 3¾ inches.

Surface Course or Paving Mixture—The paving mixture consists of the following mineral aggregate by weight: 58 per cent. ¾-inch trap rock, 20 per cent. ⅜-inch chips, 15 per cent. sand and 7 per cent. Standard Oil Company special asphalt binder. The binder, trap rock and sand were heated on the ground and mixed by hand on mixing boards, the mixture was spread and rolled to a finished depth of 2¾ inches with an eighteen-ton roller.

Seal Coat—From 9 + 95 to 10 + 66, ⅓ gallon to the square yard was applied, over which chips were spread and rolled.

Cost Per Square Yard.

Base Course	$0.283
Surface Course	0.964
Hauling Binder	0.009
Fuel	0.063
Asphalt and Stone Heaters	0.004
	$1.323

Detailed Cost Per Square Yard.

Base 3¾ inches thick.

		Per Sq. Yd.
106.4 cubic yards Trap Rock, at $1.65	$175 56	$0.229
Labor		0.054
		$0.283

SURFACE COURSE.

		Per Sq. Yd.	
Labor	$368 14	$0.480	
¾-inch Trap Rock, 60 cubic yards, at $1.80	108 00	0.140	
Chips, 18 cubic yards, at $1.90.	34 20	0.045	
Sand, 12 cubic yards, at $1.21.	14 52	0.019	
Binder, 2,688 gallons, at $0.08.	215 04	0.280	— 3.5 gals. per sq. yd.
767 square yards, at $0.964	$739 90	$0.964	

FIELD LABOR.	No.	Hours.	Rate.	
Foreman	1	24	$4 00	$12 00
Foremen	2	48	4 00	24 00
Spreading	1	24	2 25	6 75
Spreading	2	48	2 25	13 50
Mixing	8	192	2 25	54 00
Mixing	4	108	2 25	30 37
Wheeling	6	280	2 25	78 75
Heating and Carrying Oil	4	96	2 25	27 00
Heating and Carrying Oil	5	120	2 25	33 75
Heating Stone	5	235	2 25	66 09
Rollerman.	3	39	4 50	21 93
767 square yards, at $0.480				$368 14

First three days one gang worked. Last three days two gangs worked.
Total laid, 767 square yards, or an average of 85 square yards laid per day per gang.

WHITE PLAINS AVENUE EXPERIMENTAL PAVEMENTS.

SECTION FIVE—11 + 25 to 14 + 50.

Bituminous Pavement Mixing Method Laid Under the Supervision of the Texas Co.

Foundation Course—1½-inch crushed trap rock was spread and thoroughly rolled with an eighteen-ton roller to a finished depth of about 3¾ inches.

Surface Course or Paving Mixture—The paving mixture consists of ¾-inch trap rock and 6.7 per cent. by weight of Texas macadam binder. The binder was heated and mixed with the cold stone in a standard concrete mixer on the ground. The paving mixture was spread and rolled with an eighteen-ton roller to a finished depth of 2¾ inches.

Seal Coat—From 12 + 36 to 13 + 03, a seal coat of Texas 55 special, about 1¼ gallons to the square yard, was applied, over which chips were spread and rolled.

COST PER SQUARE YARD.

Base Course	$0.283
Surface Course	0.721
Tar Heater	0.001
Fuel	0.021
Hauling Binder	0.006
	$1.032

DETAILED COST PER SQUARE YARD.

Base—3¾ inches thick.

		Per Sq. Yd.
108.6 cubic yards trap rock, at $1.65	$179 19	$0.229
Labor		0.054
		$0.283

SURFACE COURSE.

		Per Sq. Yd.	
Labor	$182 86	$0.234	
¾-inch Trap Rock, 81 cubic yards, at $1.80	145 80	0.186	
Binder, 1728 gallons, at $0.12.	207 36	0.265—	2.2 gals. per sq. yd.
Concrete Mixer (rent), 7 days, at $4.00	28 00	0.036	
782 square yards, at $0.721	$564 02	$0.721	

FIELD LABOR.	No.	Hours.	Rate.	
Foreman	1	44	$4 00	$22 00
Spreading	2	90	2 25	25 31
Feeding Mixer	4	171	2 25	48 09
Wheeling	3	132	2 25	37 12
Wheeling	3	25	2 25	7 03
Heating Binder	1	48	2 25	13 50
Rollerman	1	9	4 50	5 06
Mixer Engineer	1	44	4 50	24 75
782 square yards, at $0.234				$182 86

Actual time for laying surface course, five days and four hours, or an average of 142 square yards per day.

WHITE PLAINS AVENUE EXPERIMENTAL PAVEMENTS.

SECTION SIX—14 + 50 to 17 + 75.

Amiesite Laid Under the Supervision of the Amiesite Co.

Foundation Course—1½-inch crushed trap rock and sufficient screenings to fill the voids was spread and rolled with an eighteen-ton roller to a finished depth of 3½ inches.

Surface Course or Paving Mixture—The paving mixture was shipped from the Amiesite plant and laid in two courses, the first course was composed of 1½-inch stone with binder, etc., laid and rolled to a finished depth of two inches. The second or wearing course was composed of ⅝-inch trap rock, binder, etc., laid and rolled to a finished depth of 1 inch. The paving mixture, therefore, had a finished depth of three inches. An eighteen-ton roller was used.

COST PER SQUARE YARD.

Base Course	$0.329

Surface Course.

Labor Spreading	0.155
Labor Unloading	0.132
Hauling	0.179
	$0.795

DETAILED COST PER SQUARE YARD.

Base—3½ inches thick.

		Per Sq. Yd.
106.4 cubic yards Trap Rock, at $1.65	$175 56	$0.229
21.3 cubic yards Screenings, at $1.65	35 11	0.046
Labor		0.054
		$0.329

SURFACE COURSE.

FIELD LABOR.

	No.	Hours.	Rate.
Foreman	1	21	$4 00
Laborers.	17	356	2 25
Rollerman	1	15	4 50
766 square yards, at $0.155			$119 05

Screenings, 1½ cubic yards, at $1.65.. $2 47 $0.003 per sq. yd.

LABOR UNLOADING FROM R. R. CARS.

72 Cubic Yards Amiesite.

	No.	Hours.	Rate.	
Foreman	1	34	$4 00	$17 00
Laborers	9	297	2 25	83 00
766 square yards, at $0.132				$100 90

HAULING FROM R. R. DEPOT.

	No.	Hours.	Rate.	
Teams	3	15	$5 00	$9 38
Teams	7	56	5 00	35 00
Teams	9	27	5 00	16 88
Teams	6	21	5 00	13 12
Teams	8	52	5 00	32 50
Teams	3	12	5 00	7 50
Teams	3	24	5 00	15 00
Teams	4	13	5 00	8 12
766 square yards, at $0.179				$137 50

Actual time for laying surface course, two days, four hours, or an average of 306 square yards per day.

Material was very hard, due to the length of time in cars, making work on ground and in unloading from cars very difficult. Under favorable conditions labor should be reduced 70 per cent.

WHITE PLAINS AVENUE EXPERIMENTAL PAVEMENTS.

SECTION SEVEN—17 + 75 to 20 + 67.

Sicilian Asphalt Laid by the Sicilian Asphalt Co.

Foundation Course—Consists of 1½-inch crushed trap rock laid and rolled with an eighteen-ton roller to a finished depth of 4½ inches.

Surface Course of Paving Mixture—The paving mixture is called Asphalto and was mixed at the Sicilian Asphalt Company s plant and hauled to White Plains avenue and spread. The paving mixture was not rolled until comparatively cool with a Sicilian asphalt ten-ton grooved roller, to a finished depth of 1½ inches. A light layer of cement was then sprinkled over the surface.

COST PER SQUARE YARD.

Base Course	$0.382

Surface Course.

Field Labor	0.030
Cement	0.001
Hauling	0.087
	$0.500

DETAILED COST PER SQUARE YARD.

Base—4½ inches thick.

129.9 cubic yards Trap Rock, at $1.65	$214 33	$0.299
13.0 cubic yards Screenings, at $1.65	21 40	0.029
Labor		0.054
		$0.382

SURFACE COURSE.

FIELD LABOR.

	No.	Hours.	Rate.	
Foreman	1	5	$5 00	$3 12
Spreading	10	50	1 75	10 93
Rakers	2	10	2 50	3 12
Spreading Cement	1	6	1 75	1 31
Rollerman	1	6	4 50	3 37
718 square yards, at $0.030				$21 85
Cement, 2½ bags, at $1.35 per barrel		$0.840	$0.001 per sq. yd.	

HAULING.

19 loads, at $3.25	$61 75	$0.087 per sq. yd.

Actual time for laying surface course, five hours, or an average of 1,148 square yards per day.

Section Eight—20 + 67 to 22 + 75.

Bituminous Pavement Mixing Method Laid Under the Supervision of the Barrett Manufacturing Co.

Foundation Course—1½-inch crushed trap rock and screenings was spread and rolled with an eighteen-ton roller to a finished depth of 3¾ inches.

Surface Course or Paving Mixture—The paving mixture consists of 3 parts ¾-inch trap rock, 1 part chips, and 6½ per cent. by weight of Tarvia X. The trap rock and Tarvia X were heated on the ground and mixed by hand on mixing boards, spread and rolled with an eighteen-ton roller to a finished depth of 2¾ inches.

Seal Coat—About .6 of a gallon to the square yard of Tarvia X was applied, over which chips were spread and rolled.

Cost Per Square Yard.

Base Course	$0.305
Surface Course	0.913
Seal Coat	0.137
Hauling Binder	0.009
Tar and Stone Heaters	0.002
Fuel	0.063
	$1.429

Detailed Cost Per Square Yard.

Base 3¾ inches thick.

		Per Sq. Yd.
68.1 cubic yards Trap Rock, at $1.65	$112 36	$0.229
6.8 cubic yards Screenings, at $1.65	11 23	0.022
Labor		0.054
		$0.305

SURFACE COURSE.

		Per Sq. Yd.	
Labor	$206 60	$0.421	
1½-inch Trap Rock, 6 cubic yards, at $1.65	9 90	0.177	
¾-inch Trap Rock, 43 cubic yards, at $1.80	77 40	0.177	
Chips, 14 cubic yards, at $1.90	26 60	0.054	
Binder, 1,344 gallons, at $0.095	127 68	0.261	— 2.7 gals. per sq. yd.
491 square yards, at $0.913	$448 18	$0.913	

FIELD LABOR.

	No.	Hours.	Rate.	
Foreman	1	42	$4 00	$21 00
Spreading	1	42	2 25	11 81
Mixing	4	169	2 25	47 53
Wheeling	3	142	2 25	39 93
Heating Binder	2	94	2 25	26 43
Heating Stone	3	150	2 25	42 19
Heating Stone	4	29	2 25	8 15
Rollerman	1	17	4 50	9 56
491 square yards, at $0.421				$206 60

SEAL COAT.

		Per Sq. Yd.	
Labor	$33 24	$0.068	
Chips, 3.5 cubic yards, at $1.90	6 65	0.014	
Binder, 288 gallons, at $0.095	27 36	0.055	—0.58 gals. per sq. yd.
491 square yards, at $0.137	$67 25	$0.137	

LABOR.

	No.	Hours.	Rate.	
Foreman	1	8	$4 00	$4 00
Pouring Binder	1	8	2 25	2 25
Squegee	1	8	2 25	2 25
Heating and Carrying Binder	3	26	2 25	7 31
Spreading Chips	2	16	2 25	4 50
Wheeling and Heating Chips	4	32	2 25	9 00
Rollerman	1	7	4 50	3 93
				$33 24

Actual time for laying surface course, six days, two hours, or an average of 78½ square yards per day.
Actual time for laying seal coat, one day, or an average of 491 square yards per day.
Chips required heating, were wet and cold.

WHITE PLAINS AVENUE EXPERIMENTAL PAVEMENTS.

SECTION NINE—22 + 75 TO 24 + 50.

Bituminous Pavement Mixing Method.

Foundation Course—1½-inch crushed trap rock and screenings were spread and rolled to a finished depth of 3¾ inches.

Surface Course or Paving Mixture—From 22+ 75 to 23 + 02, the binder consists of a mixture, tar and 10 per cent. of refined Bermudez asphalt. From 23 + 02 to 24 + 00, the binder consists of a mixture of tar and 15 per cent. of Bermudez asphalt of 60 penetration. From 24 + 00 to 24 + 40, the binder consists of a mixture of tar and 15 per cent. of Bermudez asphalt of 110 penetration. From + 40 to 24 + 50, Bermudez asphalt of 110 degrees penetration was used for a binder. The paving mixture consists of 3 parts ¾-inch trap rock, 1 part chips and 7 per cent. by weight of bitumen. The stone and binder were heated on the ground, mixed by hand on mixing boards, spread and rolled with an eighteen-ton roller to a finished depth of 2¾ inches.

Seal Coat—About .6 of a gallon of asphalt per square yard was applied, over which chips were spread and rolled.

COST PER SQUARE YARD.

Base Course	$0.306
Surface Course	1.034
Seal Coat	0.146
Fuel	0.063
Hauling Binder	0.009
Tar and Stone Heaters	0.002
Mixing Binder	0.076
	$1.635

DETAILED COST PER SQUARE YARD.

Base 3¾ inches thick.

		Per Sq. Yd.
57.3 cubic yards Trap Rock, at $1.65	$94 54	$0.229
5.7 cubic yards Screenings, at $1.65	9 45	0.022
Labor		0.054
		$0.305

SURFACE COURSE.

		Per Sq. Yd.
Labor	$197 84	$0.479
1½-inch Trap Rock, 5 cubic yards, at $1.65	8 25	0.181
¾-inch Trap Rock, 37 cubic yards, at $1.80	66 60	
Chips, 12 cubic yards, at $1.90	22 80	0.055
Binder, 1,115 gallons, at $0.118	131 57	0.319—2.7 gals. per sq. yd.
413 square yards, at $1.034	$427 06	$1.034

FIELD LABOR.

	No.	Hours.	Rate.	
Foreman	1	47	$4 00	$23 50
Spreading	1	46	2 25	12 93
Mixing	4	184	2 25	51 75
Wheeling	3	146	2 25	41 06
Heating Binder	4	192	2 25	53 98
Heating Binder	3	18	2 25	5 06
Rollerman	1	17	4 50	9 56
413 square yards, at $0.479				$197 84

SEAL COAT.

		Per Sq. Yd.
Labor	$23 50	$0.056
Chips, 3 cubic yards, at $1.90	5 70	0.014
Binder, 264 gallons, at $0.118	31 15	0.076—0.64 gals. per sq. yd.
413 square yards, at $0.146	$60 35	$0.146

*Labor Mixing Tar and Asphalt on Ground.**

Foreman, 3 hours	$1 50
Laborers, 2 men, 9 hours	2 53
Laborers, 3 men, 24 hours	6 75
288 gallons, at $0.037	$10 78

*This labor included part of two days, requiring heating up twice and emptying from kettles to barrels for future use. Should be mixed as used, requiring only use of extra kettle kept hot with asphalt ready to mix.

LABOR.

	No.	Hours.	Rate.	
Foreman	1	6	$4 00	$3 00
Pouring	1	6	2 25	1 68
Squegee	1	6	2 25	1 68
Heating and Carrying Binder	3	19	2 25	5 34
Spreading Chips	2	12	2 25	3 37
Wheeling and Heating Chips	4	20	2 25	5 62
Rollerman	1	5	4 50	2 81
				$23 50

Mixing binder at plant, $31.56......$0.076 per sq. yd.

Cost of this section high because work was not continuous, waiting for binder and also because of cold weather making stone harder to heat. Chips were wet and cold and required heating for seal coat.

Actual time for laying surface course, six days, or an average of 69 square yards per day.

Actual time for laying seal coat, six hours, or an average of 551 square yards per day.

WHITE PLAINS AVENUE EXPERIMENTAL PAVEMENTS.

Section Ten—24 + 50 to 27 + 97.

Bituminous Pavement Mixing Method.

Foundation Course—1½-inch crushed trap rock and screenings were spread and rolled to a finished depth of 3¾ inches.

Surface Course or Paving Mixture—The paving mixture consists of 3 parts ¾-inch trap rock, 1 part ⅜-inch trap rock chips and 6 per cent. by weight of refined tar. The binder and stone were heated on the ground and mixed by hand on mixing boards, spread and rolled with an eighteen-ton roller to a finished depth of 2¾ inches. The binder used was refined tar made up in accordance with specifications drawn up by the Office of Public Roads, U. S. Dept. of Agriculture.

Seal Coat—About .6 of a gallon to the square yard was applied, over which chips were spread and rolled.

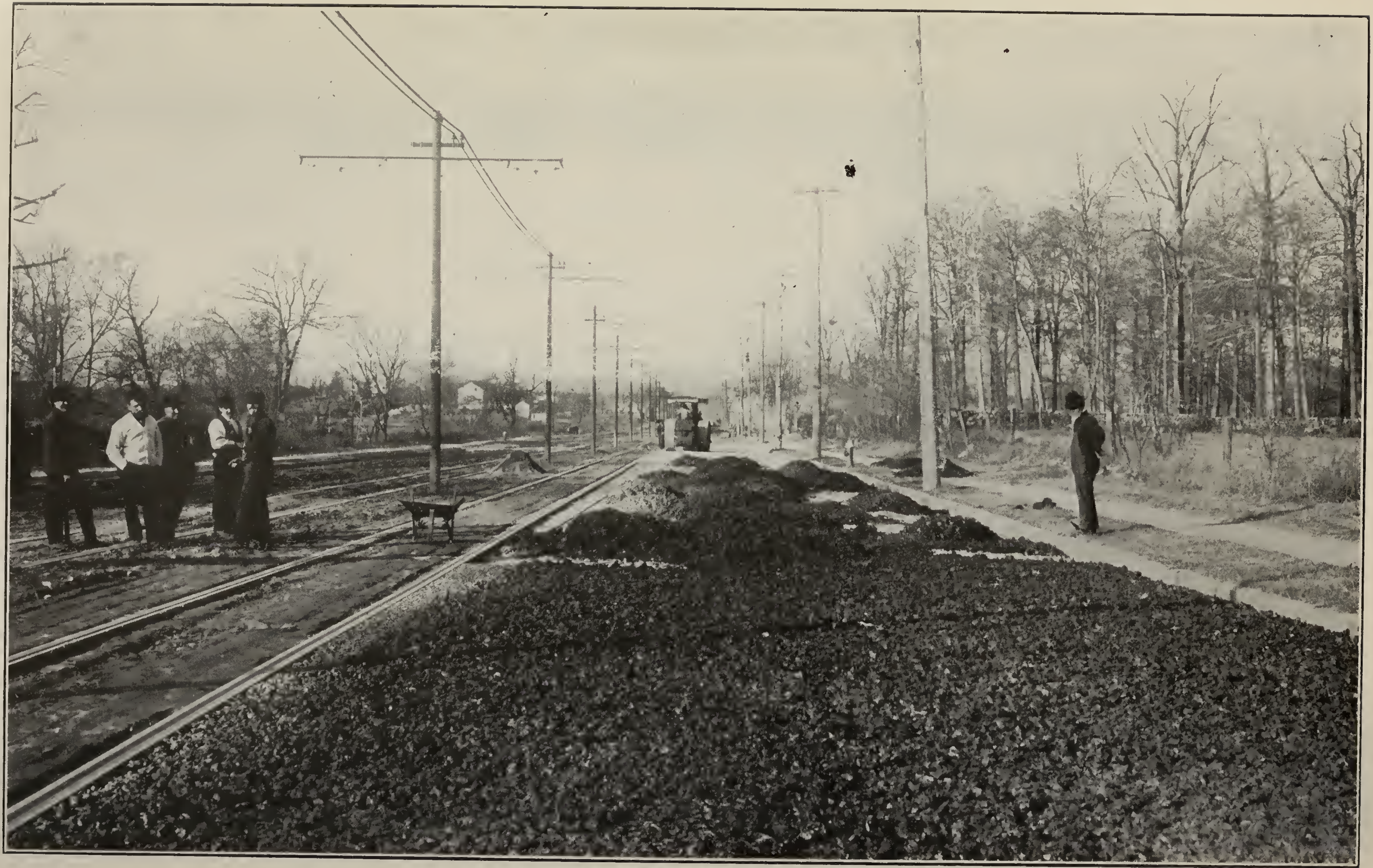
Cost Per Square Yard.

Base Course	$0.305
Surface Course	0.868
Seal Coat	0.135
Fuel	0.063
Hauling Binder	0.008
Tar and Stone Heaters	0.003
	$1.382

Detailed Cost Per Square Yard.

Base 3¾ inches thick.

		Per Sq. Yd.
113.6 cubic yards Trap Rock, at $1.65	$187.44	$0.229
11.3 cubic yards Screenings, at $1.65	18 74	0.022
Labor		0.054
		$0.305



Paving Mixture Spread on the Ground Before Rolling.

SURFACE COURSE.

		Per Sq. Yd.
Labor	$308 91	$0.377
¾-inch Trap Rock, 82.5 cubic yards, at $1.80	148 50	0.181
Chips, 27.5 cubic yards, at $1.90	52 25	0.064
Binder, 2,016 gallons, at $0.10	201.60	0.246—2.46 per sq. yd.
819 square yards, at $0.868.	$711 26	$0.868

LABOR.	No.	Hours.	Rate.	
Foreman	1	52	$4 00	$26 00
Spreading	1	20	2 25	5 60
Spreading	2	63	2 25	17 71
Mixing	4	201	2 25	56 53
Wheeling Stone	4	99	2 25	27 84
Wheeling Stone	4	140	2 25	39 37
Heating Stone	3	36	2 25	10 12
Heating Stone	5	200	2 25	56 25
Heating Tar	5	176	2 25	49 50
Heating Tar	3	23	2 25	6 47
Rollerman	1	24	4 50	13 50
819 square yards, at $0.868				$308 91

SEAL COAT.

		Per Sq. Yd.
Labor	$50 89	$0.062
Chips, 6.0 cubic yards, at $1.90	11 40	0.014
Binder, 480 gallons, at $0.10.	48 00	0.059—.59 gals per sq. yd.
819 square yards, at $0.135.	$110 29	$0.135

LABOR.	No.	Hours.	Rate.	
Foreman	1	9	$4.00	$4 50
Boring	1	10	2 25	2 81
Squegee	1	10	2 25	2 81
Heating Tar	6	54	2 25	15 18
Carrying Tar	4	35	2 25	9 84
Spreading Ships	1	9	2 25	2 53
Wheeling Chips	4	31	2 25	8 72
Rollerman	1	8	4 50	4 50
819 square yards, at $0.062				$50 89

Actual time for laying surface course, six days four hours, or an average of 126 square yards per day.

Actual time for laying seal coat, one day two hours, or an average of 655 square yards per day.

Chips not heated.

WHITE PLAINS AVENUE EXPERIMENTAL PAVEMENTS.

SECTION ELEVEN—27 + 97 TO 29 + 00.

Barrett Manufacturing Co.'s "Modern Pavement."

Foundation Course—1½-inch crushed trap rock was spread and rolled to a finished depth of 3 inches.

Surface Course or Paving Mixture—A sufficient quantity of sand was spread to fill the voids and laid about ½ inch in thickness on top of the foundation course, over which about 1 gallon of Tarvia X to the square yard was applied. 1¾-inch crushed trap rock was then spread and lightly rolled to a depth of 3 inches. About 2 gallons of Tarvia X to the square yard was then applied by the penetration method. A layer of ¾-inchstone was spread and rolled. An eighteen-ton roller was used.

Seal Coat—About 1 gallon to the square yard was applied, over which coarse sand was spread and rolled.

COST PER SQUARE YARD.

Base Course	$0.305
Surface Course	0.698
Seal Coat	0.219
Hauling Binder	0.010
Tar Heater	0.003
Fuel	0.021
	$1.256

DETAILED COST PER SQUARE YARD.

Base—3 inches thick.

		Per Sq. Yd.
33.8 cubic yards Trap Rock, at $1.65	$55 77	$0.229
3.3 cubic yards Screenings, at $1.65	5 57	0.022
Labor		0.054
		$0.305

SURFACE COURSE.

		Per Sq. Yd.	
Labor	$59 06	$0.243	
1½-inch Trap Rock, 19.6 cubic yards, at $1.65...............	32 34	0.133	
Sand, 6.5 cubic yards, at $1.21	7 86	0.032	
Binder, 1st Coat, 262 gallons, at $0.095	24 89	0.102	—1.08 gals. per sq. yd.
Binder, 2d Coat, 480 gallons, at $0.095	45 60	0.188	—1.97 gals. per sq. yd.
243 square yards, at $0.698	$169 75	$0.698	

FIELD LABOR.

First Coat.

	No.	Hours.	Rate.	
Foreman	1	6	$4 00	$3 00
Pouring	3	12	2 25	3 37
Heating Binder	2	13	2 25	3 65
Spreading Sand	10	20	2 25	5 62
Rollerman	1	2	4 50	1 12
243 square yards, at $0.069................				$16 76

Second Coat.

	No.	Hours.	Rate.	
Foreman	1	16	$4 00	$8 00
Pouring	3	9	2 25	2 53
Pouring	2	16	2 25	4 50
Heating Binder	3	9	2 25	2 53
Heating Binder	2	16	2 25	4 50
Spreading 1½-inch Stone	10	20	2 25	5 62
Spreading 1½-inch Stone	10	30	2 25	8 43
Rollerman	1	11	4 50	6 19
243 square yards, at $0.174.................				$42 30

SEAL COAT.

		Per Sq. Yd.	
Labor	$17 32	$0.071	
¾-inch Trap Rock, 5.0 cubic yards, at $1.80.............	9 00	0.037	
Sand, 2.0 cubic yards,, at $1.21	2 42	0.010	
Screenings, 1.0 cubic yards, at $1.65	1 65	0.007	
Binder, 240 gallons, at $0.095	22 80	0.094	— .99 gals. per sq. yd.
243 square yards, at $0.219	$53 19	$0.219	

LABOR.

	No.	Hours.	Rate.	
Foreman	1	6	$4 00	$3 00
Heating Binder	1	6	2 25	1 68
Pouring Binder	2	10	2 25	2 81
Spreading Sand	2	10	2 25	2 81
Spreading ¾-inch Stone.	2	16	2 25	4 50
Spreading Screenings...	3	3	2 25	0 84
Rollerman	1	3	4 50	1 68
				$17 32

Actual time for laying surface course—1st coat, six hours, or an average of 324 yards per day. 2d coat, eight hours, or an average of 243 square yards per day.

Actual time for laying seal coat, six hours, or an average of 324 square yards per day.

WHITE PLAINS AVENUE EXPERIMENTAL PAVEMENTS.

SECTION TWELVE—29 + 00 TO 31 + 00.

Bituminous Pavement Penetration Method.

Foundation Course—1½-inch crushed trap rock and sufficient screenings to fill the voids was spread and rolled to a finished depth of 3½ inches.

Surface Course or Paving Mixture—1½-inch crushed trap rock was spread and lightly rolled to a depth of 2¾ inches. From 29 + 00 to 30 + 50 about 1½ gallons of Sanford & Strains asphalt binder was applied and a layer of ¾-inch trap rock was spread and rolled. From 30 + 50 to 31 + 00, the Standard Oil Co.'s special binder was used.

Seal Coat—¾ of a gallon to the square yard was applied, over which coarse sand and chips were spread and rolled. An eighteen-ton roller was used.

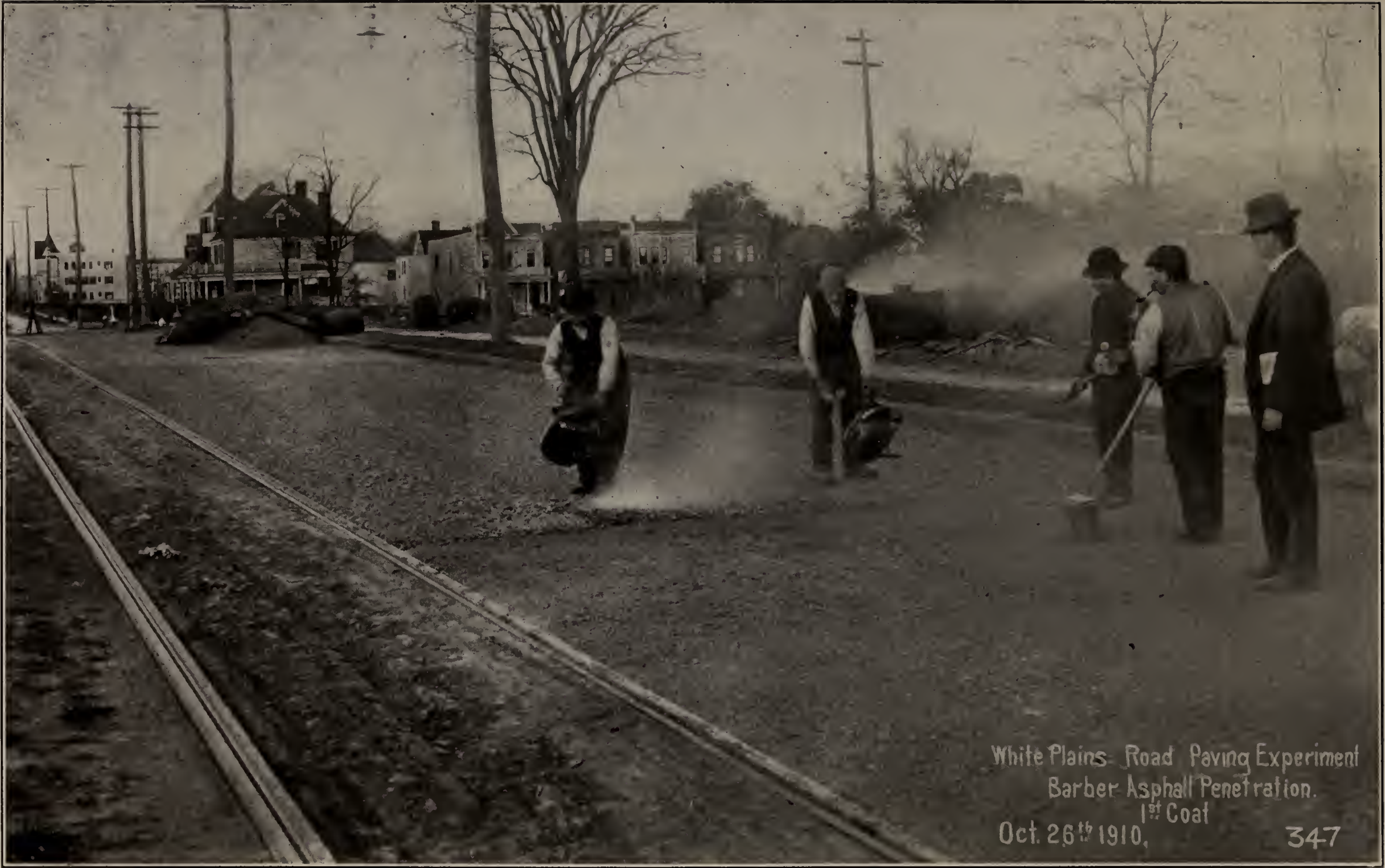
COST PER SQUARE YARD.

Base Course	$0.329
Surface Course	0.501
Seal Coat	0.123
Hauling Binder	0.006
Tar and Stone Heaters	0.003
Fuel	0.021
	$0.983

DETAILED COST PER SQUARE YARD.

Base—3½ inches thick.

		Per Sq. Yd.
65.7 cubic yards Trap Rock, at $1.65	$108 40	$0.229
13.1 cubic yards Screenings, at $1.65	21 68	0.046
Labor		0.054
		$0.329


White Plains Road Paving Experiment
Barber Asphalt Penetration.
1st Coat
Oct. 26th 1910.
347

POURING BINDER ON A PENETRATION SECTION.

SURFACE COURSE.

		Per Sq. Yd.	
Labor	$93 56	$0.198	
1½-inch Trap Rock, 45.9 cubic yards, at $1.65	75 73	0.161	
¾-inch Trap Rock, 3.5 cubic yards, at $1.80	6 30	0.013	
Binder, 719 gallons, at $0.085	61 11	0.129	—1.52 gals. per sq. yd.
472 square yards, at $0.501	$237 70	$0.501	

FIELD LABOR.	No.	Hours.	Rate.	
Foreman	1	28	$4 00	$14 00
Pouring Binder	1	16	2 25	4 50
Heating Binder	2	38	2 25	10 68
Carrying Binder	3	34	2 25	9 56
Spreading Top Course, 1½-inch Stone	7	92	2 25	25 87
Spreading ¾-inch Stone	1	20	2 25	5 62
Wheeling Stone	2	21	2 25	5 90
Heating Stone	3	32	2 25	9 00
Rollerman	1	15	4 50	8 43
472 square yards, at $0.198				$93 56

SEAL COAT.

		Per Sq. Yd.	
Labor	$21 31	$0.045	
Chips, 3.5 cubic yards, at $1.90	6 65	0.014	
Binder, 353 gallons, at $0.085	30 01	0.064	— .75 gal. per sq. yd.
472 square yards, at $0.123	$57 97	$0.123	

LABOR.	No.	Hours.	Rate.	
Foreman	1	5	$4 00	$2 50
Pouring Binder	1	5	2 25	1 40
Carrying Binder	3	12	2 25	3 37
Heating Binder	2	13	2 25	3 65
Spreading Chips	1	7	2 25	1 96
Wheeling Chips	2	9	2 25	2 53
Heating Chips	2	11	2 25	3 09
Rollerman	1	5	4 50	2 81
				$21 31

Actual time for laying surface course (including top course), 3½ days, or an average of 135 square yards per day. ¾-inch stone required heating. Owing to lack of binder, work was deferred three times, which, of course, added to cost.

Actual time for laying seal coat, five hours, or an average of 755 square yards per day. Chips required heating.

WHITE PLAINS AVENUE EXPERIMENTAL PAVEMENTS.

SECTION THIRTEEN—31 + 00 TO 33 + 00.

Hassam Concrete Pavement.

1½-inch trap rock (crushed) was laid and rolled with an eighteen-ton roller to a finished depth of six inches. Sand and cement were mixed in proportions of 1¾ sand to 1 of cement and forced into the voids of the stone by means of a special pressure machine used by the Hassam Paving Company.

		Per Sq. Yd.
Labor	$110 40	$0.234
1½-inch Trap (total) 111.6 cubic yards, at $1.65	184 14	0.390
Sand, 33.0 cubic yards, at $1.21	39 93	0.085
Cement, 535 bags, at $1.35 per barrel	180 56	0.382
Hauling Sand, Cement and Tools—		
6 teams, 80 hours, at $0.625 per hour	50 00	0.118
2 men, 20 hours, at $0.28⅛ per hour	5 62	
		$1.209

FIELD LABOR.	No.	Hours.	Rate.	
Foreman	1	20	$4 00	$10 00
Spreading 1½-inch Stone	8	64	2 25	18 00
	12	48	2 25	13 50
	16	128	2 25	36 00
Filling bags with sand	3	48	2 25	13 50
Filling bags with sand	3	21	2 25	5 90
Mixer & Roller Engineer	1	24	4 50	13 50
472 square yards, at $0.234				$110 40

Total cost per square yard, $1.209.

Actual time for laying pavement, two days four hours, an average of 189 square yards per day. The cost of hauling could be considerably reduced.

WHITE PLAINS AVENUE EXPERIMENTAL PAVEMENTS.

SECTION FOURTEEN—33 + 00 TO 34 + 50.

Water Bound Macadam.

1½-inch crushed trap rock and sufficient screenings to fill the voids were spread, sprinkled and rolled with an eighteen-ton roller to a finished depth of 6 inches.

COST PER SQUARE YARD.

		Per Sq. Yd.
Labor	$107 11	$0.303
1½-inch Trap Rock (total), 83.7 cubic yards, at $1.65	138 10	0.390
Screenings, 16.7 cubic yards, at $1.65	27 55	0.078
354 square yards, at $0.771	$272 76	$0.771

FIELD LABOR.	No.	Hours.	Rate.	
Foreman	1	37	$4 00	$18 50
Spreading	7	254	2 25	71 43
Sprinkling Team	1	14	5 00	8 75
Rollerman	1	15	4 50	8 43
				$107 11

Total cost per square yard $0.771.

Macadam spread in two courses. Actual time in laying, four days four hours, an average of 79 square yards per day.

WHITE PLAINS AVENUE EXPERIMENTAL PAVEMENTS.

SECTION FIFTEEN—34 + 50 TO 36 + 25.

Bituminous Pavement Penetration Method.

Foundation Course—1½-inch crushed trap rock and screenings were spread and rolled to a finished depth of 3½ inches.

Surface Course or Paving Mixture—1½-inch crushed trap rock was spread and lightly rolled to a depth of 2½ inches. 2.3 gallons to the square yard of Tarvia was then applied, after which a layer of chips was spread and rolled.

Seal Coat—About ¾ of a gallon of Tarvia to the square yard was applied, over which chips was spread and rolled. An eighteen-ton roller was used.

COST PER SQUARE YARD.

Base Course	$0.305
Surface Course and Seal Coat	0.735
Fuel	0.021
Hauling Binder	0.008
Tar Heater	0.002
	$1.071

DETAILED COST PER SQUARE YARD.

Base—3½ inches thick.

		Per Sq. Yd.
57.4 cubic yards Trap Rock, at $1.65	$94 71	$0.229
5.7 cubic yards Screenings, at $1.65	9 47	0.022
Labor		0.054
		$0.305

SURFACE COURSE AND SEAL COAT COMBINED.

		Per Sq. Yd.	LABOR.	No.	Hours.	Rate.	
Labor	$100 77	$0.244	Foreman	1	48	$4 00	$24 00
1½-inch Trap Rock, 40.2 cubic yards, at $1.65	66 33	0.161	Pouring and Carrying Tar	3	106	2 25	29 81
Chips, 8.0 cubic yards, at $1.65	13 20	0.032	Heating Tar	1	11	2 25	3 08
Binder, 1,296 gallons, at $0.095	123 12	0.298—3.14 gals. per sq. yd.	Heating Tar	2	48	2 25	13 50
			Spreading 1½-inch Stone	15	60	2 25	16 88
			Spreading Chips	1	16	2 25	4 50
			Rollerman	1	16	4 50	9 00
413 square yards, at $0.735	$303 42	$0.735					$100 77

Cost of first coat of binder and seal coat not separated. Flush coat equal to about .75 gallons per square yard. Actual time of laying, five days, or an average of 80 square yards per day. (Four full days and two part days.) Length of time due to poor supervision.

WHITE PLAINS AVENUE EXPERIMENTAL PAVEMENTS.

SECTON SIXTEEN—36 + 25 TO + 75.

Bituminous Pavement Penetration Method.

Foundation Course—1½-inch crushed trap rock and screenings were spread and rolled to a finished depth of 3½ inches.

Surface Course or Paving Mixture—1½-inch crushed trap rock was spread and slightly rolled to a depth of 3 inches. 1½ gallons to the square yard of Bermudez road asphalt was then applied, after which a layer of chips was spread and rolled.

Seal Coat—½ gallon to the square yard of Bermudez was applied, over which chips was spread and rolled. An eighteen-ton roller was used.

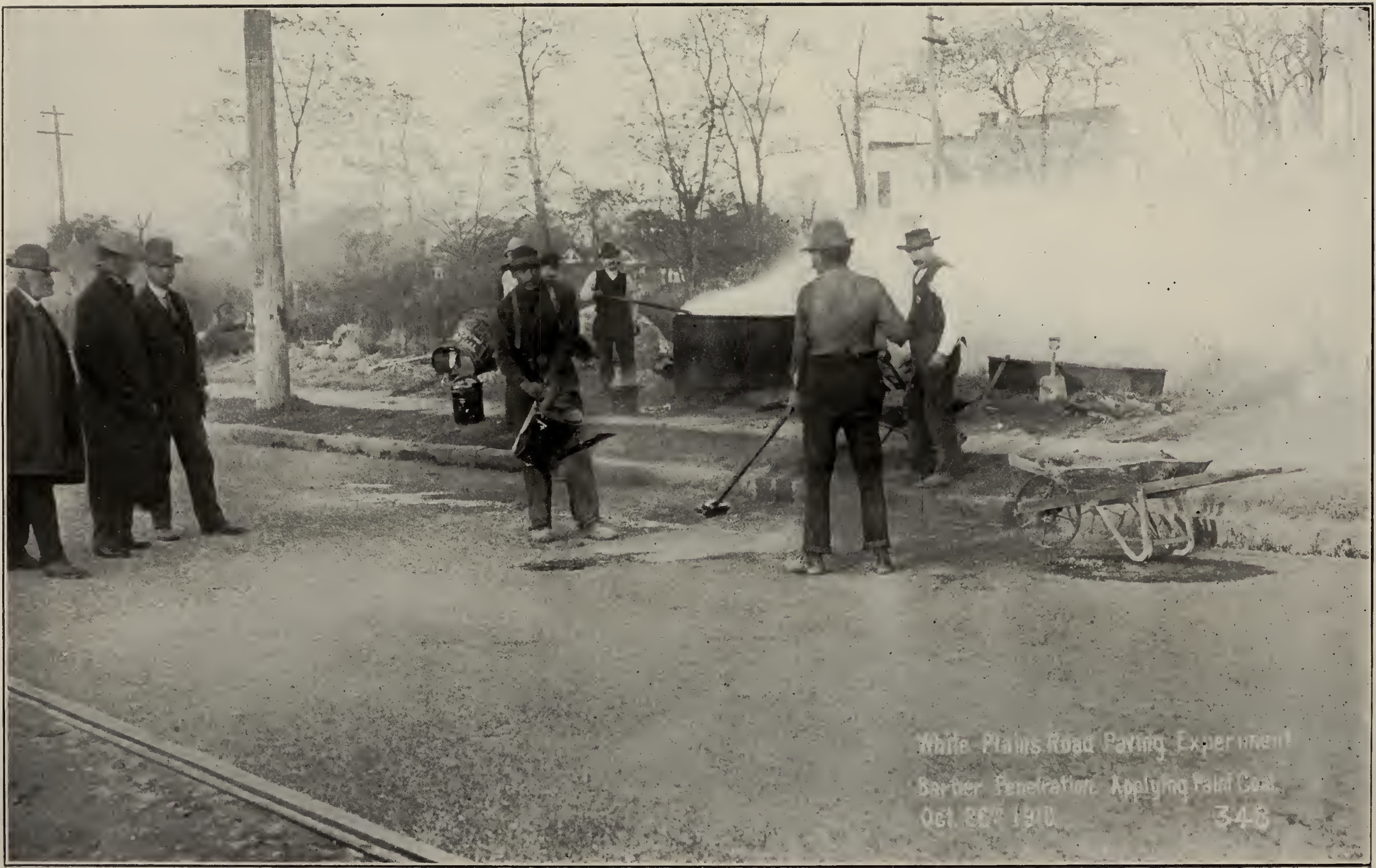
COST PER SQUARE YARD.

Base Course	$0.305
Surface Course	0.519
Seal Coat	0.123
Hauling Binder	0.005
Tar Heaters	0.002
Fuel	0.021
	$0.975

DETAILED COST PER SQUARE YARD.

Base—3½ inches thick.

		Per Sq. Yd.
49.2 cubic yards Trap Rock, at $1.65	$81 18	$0.229
4.9 cubic yards Screenings, at $1.65	8 12	0.022
Labor		0.054
		$0.305


White Plains Road Paving Experiment
Barber Penetration Applying Paint Coat
Oct. 20th 1910.
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Applying Seal Coat on a Penetration Section.

SURFACE COURSE.

		Per Sq. Yd.
Labor	$45 14	$0.128
1½-inch Trap Rock, 34.5 cubic yards, at $1.65	56 92	0.161
Chips, 5.0 cubic yards, at $1.90	9 50	0.027
Binder, 550 gallons, at $1.31	72 05	0.203—1.55 gals. per sq. yd.
354 square yards, at $0.519	$183 61	$0.519

FIELD LABOR.	No.	Hours.	Rate.	
Foreman	1	11	$4 00	$5 50
Pouring Asphalt	2	18	2 25	5 06
Heating Asphalt	2	19	2 25	5 34
Carrying Asphalt	2	18	2 25	5 06
Spreading 1½-inch Trap Rock	5	36	2 25	10 12
Spreading Chips	2	18	2 25	5 06
Rollerman	1	16	4 50	9 00
				$45 14

SEAL COAT.

		Per Sq. Yd.
Labor	$11 53	$0.032
Chips, 5.0 cubic yards, at $1.90	9 50	0.027
Binder, 173 gallons, at $0.131	22 66	0.064—0.49 gal. per sq. yd.
354 square yards, at $0.123	$43 69	$0.123

LABOR.	No.	Hours.	Rate.	
Foreman	1	4	$4 00	$2 00
Pouring Asphalt	2	6	2 25	1 68
Squegee	1	3	2 25	0 84
Heating Asphalt	1	3	2 25	0 84
Carrying Asphalt	2	6	2 25	1 68
Spreading Chips	2	6	2 25	1 68
Spreading Chips	4	4	2 25	1 12
Rollerman	1	3	4 50	1 69
				$11 53

Nothing except binder heated on ground, chips delivered hot from plant and remained warm until finish of job.
Actual time for laying surface course, one day, three hours, or an average of 257 square yards per day.
Actual time for laying seal coat, four hours, or an average of 708 square yards per day.

WHITE PLAINS AVENUE EXPERIMENTAL PAVEMENTS.

SECTION SEVENTEEN—37 + 75 TO 39 + 22.

Bituminous Pavement Penetration Method.

Surface and Base Course Spread in One Course—1½-inch crushed trap rock was spread and rolled to a depth of 6 inches. 1 1/3 gallons to the square yard of Standard Oil Co.'s Binder "B" was then applied, over which a layer of ¾-inch trap rock was spread and rolled.

Seal Coat—1.1 gallon to the square yard of Binder "B" was applied, after which chips was spread and rolled. An eighteen-ton roller was used.

COST PER SQUARE YARD.

Surface and Base Course	$0.648
Seal Coat	0.177
Fuel	0.021
Hauling Binder	0.006
Tar Heater	0.001
	$0.853

DETAILED COST PER SQUARE YARD.

SURFACE AND BASE COURSE.

		Per Sq. Yd.
Labor	$41 90	$0.121
1½-inch Trap Rock, 82.0 cubic yards, at $1.65	135 30	0.390
¾-inch Trap Rock, 5.0 cubic yards, at $1.80	9 00	0.026
Binder, 480 gallons, at $0.08	38 40	0.111—1.38 gals. per sq. yd.
347 square yards, at $0.648	$224 60	$0.648

FIELD LABOR.	No.	Hours.	Rate.	
Foreman	1	18	$4 00	$9 00
Pouring and Carrying Oil	3	48	2 25	13 50
Heating Oil	2	25	2 25	7 03
Spreading 1½-inch Trap Rock	10	20	2 25	5 62
Spreading ¾-inch Trap Rock	2	16	2 25	4 50
Rollerman	1	4	4 50	2 25
347 square yards, at $0.121				$41 90

SEAL COAT.

		Per Sq. Yd.
Labor	$25 12	$0.072
Chips, 3.0 cubic yards, at $1.90	5 70	0.017
Binder, 384 gallons, at $0.08	30 70	0.088—1.11 gals. per sq. yd.
347 square yards, at $0.177	$61 54	$0.177

LABOR.	No.	Hours.	Rate.	
Foreman	1	12	$4 00	$6 00
Pouring and Carrying Oil	2	24	2 25	6 75
Heating Oil	1	13	2 25	3 65
Spreading Chips	2	23	2 25	6 47
Rollerman	1	4	4 50	2 25
				$25 12

Actual time for laying surface course (extending base course), 2¼ days, or an average of 154 square yards per day.
Actual time for laying seal coat, 1½ days, or an average of 231 square yards per day.
Nothing but binder heated. 1½-inch trap rock spread in one course without screenings.

WHITE PLAINS AVENUE EXPERIMENTAL PAVEMENTS.

SECTION EIGHTEEN—39 + 22 TO 41 + 20.

Standard Oil Co.'s Sand Surface Method.

Application of Oil and Sand—This was an old strip of water-bound macadam which was swept, after which ¾ gallon to the square yard of Standard Oil Co.'s Binder A was applied, over which sand was spread about one inch thick and lightly rolled.

COST PER SQUARE YARD.

Sand Course	$0.178
Hauling Binder	0.002
Tar Heater	0.001
Fuel	0.021
	$0.202

SAND COURSE.

		Per Sq. Yd.	
Labor	$40 45	$0.086	
Sand, 10 cubic yards, at $1.21	12 10	0.026	
Binder, 384 gallons, at 0.08	30 72	0.066—	.82 gals. per sq. yd.
467 square yards, at $0.178	$83 27	$0.178	

FIELD LABOR.	No.	Hours.	Rate.	
Foreman	1	14	$4 00	$7 00
Cleaning Macadam	3	24	2 25	6 75
Pouring and Carrying Binder	4	40	2 25	11 25
Heating Binder	2	20	2 25	5 62
Spreading Sand	3	21	2 25	5 90
Tamping	1	2	2 25	0 56
Rollerman	1	6	4 50	3 37
467 square yards, at $0.086				$40 45

Actual time for laying sand course 2½ days (gang time), or an average of 187 square yards per day, including cleaning and brooming old macadam.

Cost of Base Course, Fuel, Hauling Binder, Tar Kettles, Stone Heaters, Etc.

3½-inch Macadam Base.

		Per Sq. Yd.
379.5 cubic yards 1½-inch Trap Rock, at $1.65	$626 17	$0.229
37.9 cubic yards Screenings, at $1.65	62 61	0.022
Labor		0.054
2733 square yards		$0.305

3½-inch Macadam Base.

		Per Sq. Yd.
321.4 cubic yards 1½-inch Trap Rock at $1.65	$530 31	$0.229
Labor		0.054
2316 square yards		$0.283

4¾-inch Concrete Base—Williams' Process.

		Per Sq. Yd.
59 cubic yards 1½-inch Trap Rock, at $1.65	$97 35	$0.275
Labor spreading 1½-inch Stone	......	0.054
Screenings, 9.0 cubic yards, at $1.65	14 85	0.042
Cement, 20¼ barrels, at $1.35	27 34	0.077
Labor, mixing Cement, Screenings and Rolling, etc.	19 96	0.056
354 square yards		$0.504

3½-inch Macadam Base.

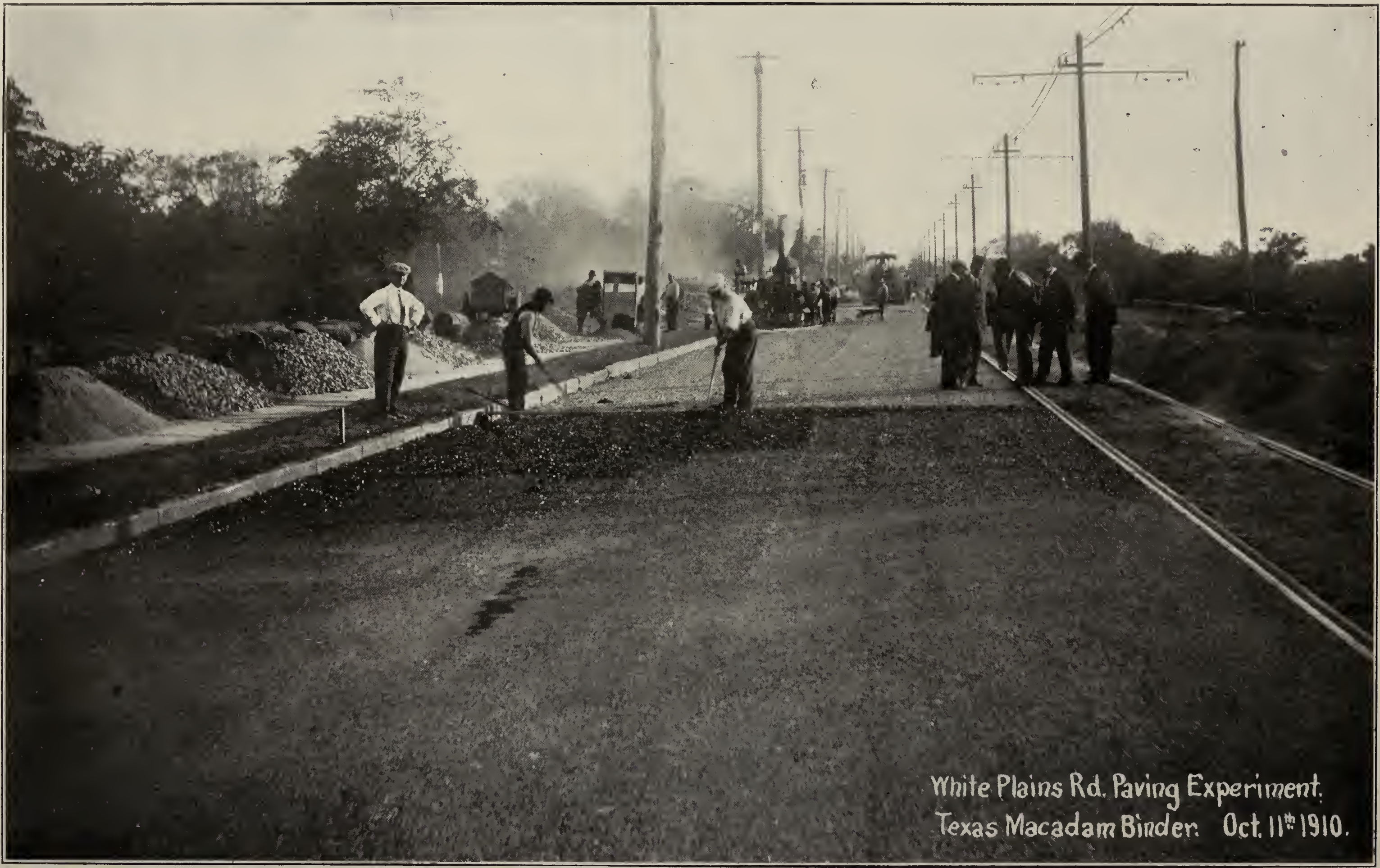
		Per Sq. Yd.
221.3 cubic yards 1½-inch Trap Rock, at $1.65	$365 14	$0.229
44.2 cubic yards Screenings, at $1.65	73 02	0.046
Labor		0.054
1592 square yards		$0.329

4½-inch Macadam Base.

		Per Sq. Yd.
129.9 cubic yards 1½-inch Trap Rock, at $1.65	$214 33	$0.299
13.0 cubic yards Screenings, at $1.65.	21 43	0.029
Labor		0.054
718 square yards		$0.382

Spreading Base Course.

	Per Sq. Yd.
Foreman, 98 hours, at $0.50	$49 00
Laborers, 1,149 hours, at $0.28⅛	323 15
Rollerman, 82 hours, at $0.56¼	46 12
7,713 square yards, at $0.054	$418 27



White Plains Rd. Paving Experiment.
Texas Macadam Binder. Oct. 11th 1910.

Mixing Binder and Cold Stone in Concrete Mixer and Spreading Paving Mixture.

FUEL.

41 cords at $6.50.................. $266 50
$0.048 per square yard on 5,568 square yards.

Estimated $0.021 per square yard for penetration and mixing with cold stone.
Estimated $0.063 per square yard for mixing with hot stone.

The heating surface required to heat the stone was twice the area of that required to heat tar and asphalt, therefore the mixing jobs when stone was heated required three times the amount of wood that was used on penetration or cold stone sections when binder only was heated.

Hauling Binder.

12,000 gallons cost $93.70.............$0.0078 per gallon.

Should cost for same haul.

5 loads = 500 gals. x 5 = 2,500 gals. per day, at $6.50.........$0.0026 per gal.

Tar Kettles and Stone Heaters.

Tar kettles cost about $100; life ten years.
Interest 4 per cent. for 10 years, plus Sinking Fund $8.006 per year for ten years = $120.06.
Total cost $120.06 for 10 years = $12.006 per year.
120 working days = 10c. per day.
Stone heaters of flat plates cost about $15.00.
Life 10 years = Interest 4 per cent. for 10 years.
Plus Sinking Fund $1.20 per year for 10 years = $18.00.
Total cost $1.80 per year.
120 working days = 1½c. per day.

Pavement.	Date.	Temperature.			Weather.	Date Completed.	Temperature.			Weather.
		9	12	3			9	12	3	
Barber Asphalt..............	Sept. 29, 1910	62	65	67	Clear....	Sept. 29, 1910	62	65	67	Clear....
Bronx Asphalt 55............	Sept. 30, 1910	62	65	67	Hazy....	Oct. 1, 1910	66	70	..	Clear....
Bronx Asphalt...............	Oct. 14, 1910	60	68	69	Fair.....	Oct. 15, 1910	61	63	..	Cloudy..
Standard Oil Mixing.........	Nov. 9, 1910	39	45	46	Cloudy...					
	Nov. 10, 1910	48	54	55	Clear....					
	Nov. 11, 1910	44	48	43	Cloudy...					
	Nov. 12, 1910	35	37	..	Cloudy...					
	Nov. 14, 1910	38	44	43	Cloudy...	Nov. 15, 1910	33	39	40	Cloudy...
Texas Mixing...............	Oct. 5, 1910	71	74	76	Cloudy...					
	Oct. 6, 1910	72	76	79	Clear....					
	Oct. 8, 1910	54	55	..	Cloudy...					
	Oct. 10, 1910	56	59	52	Clear....					
	Oct. 11, 1910	59	66	69	Clear....					
	Oct. 13, 1910	48	52	55	Clear....					
	Oct. 14, 1910	60	68	69	Fair.....	Oct. 15, 1910	61	63	..	Cloudy...
Amiesite	Nov. 7, 1910	34	40	43	Clear....					
	Nov. 9, 1910	39	45	46	Cloudy...					
	Nov. 10, 1910	48	54	55	Clear....	Nov. 11, 1910	44	48	43	Cloudy...
Sicilian Asphalt.............	Oct. 19, 1910	59	65	68	Clear....	Oct. 21, 1910	55	57	59	Cloudy...
Tarvia Mixing...............	Oct. 26, 1910	49	54	56	Clear....					
	Oct. 27, 1910	58	65	67	Cloudy...					
	Oct. 28, 1910	54	55	56	Clear....					
	Oct. 29, 1910	44	48	..	Clear....					
	Oct. 31, 1910	40	49	53	Clear....	Nov. 1, 1910	44	53	56	Clear....
(Flush Coat)..............	Nov. 10, 1910	48	54	55	Clear....	Nov. 11, 1910	44	48	43	Cloudy...
Tar and Asphalt Mixing......	Oct. 26, 1910	49	54	56	Clear....					
	Oct. 27, 1910	58	65	67	Cloudy...					
	Oct. 31, 1910	40	49	53	Clear....					
	Nov. 1, 1910	44	53	56	Clear....					
	Nov. 2, 1910	52	57	60	Cloudy...					
Tar and Asphalt Mixing......	Nov. 7, 1910	34	40	43	Clear....					
	Nov. 9, 1910	39	45	46	Overcast.	Nov. 10, 1910	48	54	55	Clear....
U. S. Tar..................	Oct. 21, 1910	55	57	59	Cloudy...					
	Oct. 22, 1910	52	53		Rain.....					
	Oct. 24, 1910	52	54	56	Clear....					

Pavement.	Date.	Temperature.			Weather.	Date Completed.	Temperature.			Weather.
		9	12	3			9	12	3	
	Oct. 25, 1910	55	60	60	Cloudy...					
	Oct. 26, 1910	49	54	56	Clear....					
	Oct. 27, 1910	58	65	67	Cloudy...					
	Oct. 28, 1910	54	55	56	Clear....					
Barrett Mfg. Co. "Modern Pavement"	Oct. 29, 1910	44	48	..	Clear....	Oct. 31, 1910	40	49	53	Clear....
	Oct. 19, 1910	59	65	68	Clear....					
	Oct. 21, 1910	55	57	59	Cloudy...					
	Oct. 22, 1910	52	53	..	Rain.....					
	Oct. 24, 1910	52	54	56	Clear....	Oct. 25, 1910	55	60	60	Cloudy...
Section 12, Asphalt Binder (Penetration)	Nov. 14, 1910	38	44	43	Cloudy...					
	Nov. 15, 1910	33	39	40	Cloudy...					
	Nov. 17, 1910	38	40	42	Clear....					
	Nov. 18, 1910	38	44	40	Clear....	Nov. 22, 1910	37	42	46	Overca.t.
Hassam Paving Co...........	Oct. 13, 1910	48	52	55	Clear....					
	Oct. 14, 1910	60	68	69	Clear....	Oct. 15, 1910	61	63	..	Cloudy...
Water Bound Macadam......	Oct. 18, 1910	59	65	66	Clear....					
	Oct. 19, 1910	59	65	68	Clear....					
	Oct. 24, 1910	52	54	56	Clear....					
	Oct. 28, 1910	54	55	56	Clear....					
	Oct. 29, 1910	44	48	..	Clear....	Nov. 19, 1910	36	39	..	Clear....
Tarvia Penetration	Oct. 13, 1910	48	52	55	Clear....					
	Oct. 14, 1910	60	68	69	Fair.....					
	Oct. 15, 1910	61	63	..	Cloudy...					
	Oct. 17, 1910	60	65	66	Cloudy...					
	Oct. 18, 1910	59	65	66	Clear....	Oct. 19, 1910	59	65	68	Clear....
Barber Penetration	Oct. 26, 1910	49	54	56	Clear....					
	Oct. 27, 1910	58	65	67	Cloudy...	Oct. 28, 1910	54	55	56	Clear....
Standard Oil Penetration....	Oct. 18, 1910	59	65	66	Clear....					
	Oct. 19, 1910	59	65	68	Clear....					
	Oct. 21, 1910	55	57	59	Cloudy...					
	Oct. 24, 1910	52	54	56	Clear....	Oct. 25, 1910	55	60	60	Cloudy...
Standard Oil Sand...........	Oct. 18, 1910	59	65	66	Clear....					
	Oct. 19, 1910	59	65	68	Clear....	Oct. 21, 1910	55	57	59	Cloudy...

TRAFFIC CENSUS.

White Plains Road Experimental Roadway—5 a. m. to 9 p. m.

	January, 1911.				
	Fri. 6th	Sat. 7th	Sun. 8th	Mon. 9th	To-tal.
Horse without vehicle	..	1	4	2	7
Horse vehicle, light	15	36	37	34	122
Horse vehicle, heavy	48	51	5	48	152
Two-horse vehicle, light	5	8	3	6	22
Two-horse vehicle, heavy	38	59	..	45	142
Three-horse vehicle	1	..	..	..	1
Four-horse vehicle	4	2	..	..	6
Motorcycles	..	..	8	1	9
Two-passenger car	2	5	11	3	21
Four and five-passenger car	12	27	51	21	111
Six and seven-passenger car	9	12	34	9	64
Freight truck, omnibus, etc.	17	21	..	18	56
Traction engine	..	..	..	..	..
Two-traction engine	..	..	..	..	..
Miscellaneous heavy traffic	..	..	..	..	..
Totals	151	222	153	187	713

	March, 1911.				
	Sat. 11th	Sun. 12th	Mon. 13th	Tues. 14th	To-tal.
Horse without vehicle	8	2	2	1	13
Horse vehicle, light	52	35	43	51	181
Horse vehicle, heavy	73	7	57	64	201
Two-horse vehicle, light	14	4	7	9	34
Two-horse vehicle, heavy	64	2	65	55	186
Three-horse vehicle	1	..	1	1	3
Four-horse vehicle	..	..	..	..	..
Motorcycles	7	7	1	2	17
Two-passenger car	9	12	13	11	45
Four and five-passenger car	61	79	48	54	242
Six and seven-passenger car	54	56	24	17	151
Freight truck, omnibus, etc.	32	2	30	29	93
Traction engine	..	..	..	2	2
Two-traction engine	..	..	..	..	..
Miscellaneous heavy traffic	..	..	1	..	1
Totals	375	206	292	296	1,169

Sample form used for Traffic observation on White Plains Road.

TRAFFIC CENSUS.

White Plains Road Experimental Roadway—March 11, 1911

	5-6 A.M.	6-7 A.M.	7-8 A.M.	8-9 A.M.	9-10 A.M.	10-11 A.M.	11-12 A.M.	12-1 P.M.	1-2 P.M.	2-3 P.M.	3-4 P.M.	4-5 P.M.	5-6 P.M.	6-7 P.M.	7-8 P.M.	8-9 P.M.	Total.
Horse without vehicle...	..	..	..	1	..	1	..	..	..	..	3	3	..	..	..	..	8
Horse vehicle, light.....	..	..	1	11	6	3	5	4	2	2	4	6	5	1	2	..	52
Horse vehicle, heavy....	..	..	2	4	4	3	7	5	8	11	5	6	11	4	3	..	73
Two-horse vehicle, light.	..	6	3	..	..	..	..	..	..	3	1	..	..	1	..	..	14
Two-horse vehicle, heavy	..	..	1	9	9	5	5	2	7	6	3	5	10	1	..	1	64
Three-horse vehicle	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1
Four-horse vehicle	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Motorcycles	..	..	..	..	..	..	1	..	..	2	2	1	1	..	..	..	7
Two-passenger car......	..	..	..	1	..	1	2	..	..	..	1	..	3	1	..	..	9
Four and five-passenger car	..	..	..	2	3	2	6	3	8	8	8	8	6	3	3	1	61
Six and seven passenger car	..	..	1	2	3	3	3	1	2	1	9	11	7	5	3	3	54
Freight truck, omnibus, etc.	..	4	1	2	3	1	3	1	5	4	4	2	1	1	..	..	32
Traction engine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Two-traction engine....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Miscellaneous heavy traffic	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals............	..	10	9	32	28	19	32	16	32	37	40	43	45	16	11	5	375

..............................Inspector. 5 A.M. to 1 P.M.   ....Inspector. 1 P. M. to 9 P. M.

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